The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

VOL. 24. NO. 28 TULSA, OKLAHOMA, DECEMBER 3, 1925

Copyright, 1925, by The Petroleum Publishing Co.

TABLE OF CONTENTS

SPECIAL ARTICLES

Garber Field's Gusher Showing Water 19
By Andrew M. Rowley
Record high gravity well starts slump. New promising areas in California will bear watching.

Profits and the Average Barrel of Oil 21
By Charles E. Bowles
Price of crude has traveled upward about in the same proportion to the increase of gasoline recovered.

Garber's Peculiarities Are Puzzling 22
By C. D. Lockwood
The increasing water menace, added to geological uncertainties, have production departments guessing.

Davenport Has Unique Characteristics 23
By J. L. Dwyer
No dry holes drilled in field which produces crude of 53 gravity. Many difficulties at the start.

Institute Group Sessions Important 24
Discussion of specific subjects will probably feature Los Angeles convention. Big attendance assured.

Decline in Completions and Drilling 117
November field operations east of California result in increase in initial production but show a conservative trend in new work.

Classifying Methods of Oil Discovery 133
By Jon A. Udden
Credit for geologic and non-geologic discoveries cannot be given arbitrarily, as so many initial tests show a dovetailing of effort.

FIELD OPERATIONS

North Central Texas 29
By George R. Kelley

Late Field News 31

Oklahoma 33
By C. D. Lockwood

Kansas 34
By C. D. Lockwood

North Louisiana-Arkansas 36
By M. L. Vaughn

Mexico 40
By George Blardone

New Mexico 40
By Special Correspondent

Southwest Texas 42
By Special Correspondent

Gulf Coast 44
By P. L. McGreal

East Central Texas 44
By Special Correspondent

Rocky Mountain Fields 46
By F. B. Taylor

Canada 46
By Victor Lauriston

California 48
By L. P. Stockman

Pennsylvania-West Virginia 50
By D. S. Wakenight

Central West 54
By Whit

Kentucky-Tennessee 54
By Vern T. Whitney

Texas Gross Production Third Quarter 75

Gulf Coast Stocks Steadily Decreased 98

California Field Operations in October 106

October Production in 5 Mid-Continent States 127

REFINING AND MARKETING

Upward Trend in Oklahoma Prices 20
By Neil Williams
More optimistic feeling on the part of sellers brings higher prices in several products. Expected crude advances a factor.

Straight Run Versus Cracked Gasoline 62
By Gustav Egloff
Comparative tests in an automotive engine show superiority of latter. Properties of several types and grades of gasoline explained.

Bomb Test Data in Regard to Gasoline 62

Public Attitude Toward Motor Fuels 66
By O. C. Smith
Opposition to cracked gasoline due to ignorance regarding its constituency. Other synthetic products commonly used.

Tests Covering Relative Value of Gasolines 66
By L. M. Fanning

Refineries With Cracking Survive 68
By C. O. Willson
Of the 197 plants shut down only 3 have commercial processes. Those with cracking equipment handle 75 per cent of the crude.

Gasolines Firm in Chicago Area 134
By John B. Waldo

Eastern Gasoline Situation Stronger 135

Refining and Marketing News 136

Plant Operators' Page 139

Refinery and Crude Prices 140-141

Tank Wagon Quotations 142

ARTICLES OF GENERAL INTEREST

The Advertisers' Index 17

Natural Gas Developments 56

New Type of Orifice Flange 56
By F. L. Kallam

Equipment and Supplies 59

Men Known in Oildom and Personals 60

Gulf Port Crude and Refined Shipments 102

Buying of Tubular Goods at Low Ebb 126

Classified Want Advertisements 128-129-130

Renewed Interest in Oil Group 137
By N. O. Fanning
Stocks active but irregular the last week. Average price of 20 representative stocks 25 per cent higher than a year ago.

What and Where to Buy 159-160-161

Crude Petroleum and Pipe Line Statistics 162

BE A REGULAR READER

The OIL and GAS JOURNAL. Tulsa, Okla.

You are hereby directed to mail The Oil and Gas Journal to me for.....year. Enclosed find remittance $.....

Classify my interests as checked by me.

.....Producing .....Refining
.....Equipment .....Marketing

Name.....
Address.....
City.....

$6 a Year
$3 6 Months

The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

VOL. 24. NO. 28 TULSA, OKLAHOMA, DECEMBER 3, 1925

Copyright, 1925, by The Petroleum Publishing Co.

TABLE OF CONTENTS

SPECIAL ARTICLES

Garber Field's Gusher Showing Water 19
By Andrew M. Rowley
Record high gravity well starts slump. New promising areas in California will bear watching.

Profits and the Average Barrel of Oil 21
By Charles E. Bowles
Price of crude has traveled upward about in the same proportion to the increase of gasoline recovered.

Garber's Peculiarities Are Puzzling 22
By C. D. Lockwood
The increasing water menace, added to geological uncertainties, have production departments guessing.

Davenport Has Unique Characteristics 23
By J. L. Dwyer
No dry holes drilled in field which produces crude of 53 gravity. Many difficulties at the start.

Institute Group Sessions Important 24
Discussion of specific subjects will probably feature Los Angeles convention. Big attendance assured.

Decline in Completions and Drilling 117
November field operations east of California result in increase in initial production but show a conservative trend in new work.

Classifying Methods of Oil Discovery 133
By Jon A. Udden
Credit for geologic and non-geologic discoveries cannot be given arbitrarily, as so many initial tests show a dovetailing of effort.

FIELD OPERATIONS

North Central Texas 29
By George R. Kelley

Late Field News 31

Oklahoma 33
By C. D. Lockwood

Kansas 34
By C. D. Lockwood

North Louisiana-Arkansas 36
By M. L. Vaughn

Mexico 40
By George Blardone

New Mexico 40
By Special Correspondent

Southwest Texas 42
By Special Correspondent

Gulf Coast 44
By P. L. McGreal

East Central Texas 44
By Special Correspondent

Rocky Mountain Fields 46
By F. B. Taylor

Canada 46
By Victor Lauriston

California 48
By L. P. Stockman

Pennsylvania-West Virginia 50
By D. S. Wakenight

Central West 54
By Whit

Kentucky-Tennessee 54
By Vern T. Whitney

Texas Gross Production Third Quarter 75

Gulf Coast Stocks Steadily Decreased 98

California Field Operations in October 106

October Production in 5 Mid-Continent States 127

REFINING AND MARKETING

Upward Trend in Oklahoma Prices 20
By Neil Williams
More optimistic feeling on the part of sellers brings higher prices in several products. Expected crude advances a factor.

Straight Run Versus Cracked Gasoline 62
By Gustav Egloff
Comparative tests in an automotive engine show superiority of latter. Properties of several types and grades of gasoline explained.

Bomb Test Data in Regard to Gasoline 62

Public Attitude Toward Motor Fuels 66
By O. C. Smith
Opposition to cracked gasoline due to ignorance regarding its constituency. Other synthetic products commonly used.

Tests Covering Relative Value of Gasolines 66
By L. M. Fanning

Refineries With Cracking Survive 68
By C. O. Willson
Of the 197 plants shut down only 3 have commercial processes. Those with cracking equipment handle 75 per cent of the crude.

Gasolines Firm in Chicago Area 134
By John B. Waldo

Eastern Gasoline Situation Stronger 135

Refining and Marketing News 136

Plant Operators' Page 139

Refinery and Crude Prices 140-141

Tank Wagon Quotations 142

ARTICLES OF GENERAL INTEREST

The Advertisers' Index 17

Natural Gas Developments 56

New Type of Orifice Flange 56
By F. L. Kallam

Equipment and Supplies 59

Men Known in Oildom and Personals 60

Gulf Port Crude and Refined Shipments 102

Buying of Tubular Goods at Low Ebb 126

Classified Want Advertisements 128-129-130

Renewed Interest in Oil Group 137
By N. O. Fanning
Stocks active but irregular the last week. Average price of 20 representative stocks 25 per cent higher than a year ago.

What and Where to Buy 159-160-161

Crude Petroleum and Pipe Line Statistics 162

BE A REGULAR READER

The OIL and GAS JOURNAL. Tulsa, Okla.

You are hereby directed to mail The Oil and Gas Journal to me for.....year. Enclosed find remittance $.....

Classify my interests as checked by me.

.....Producing .....Refining
.....Equipment .....Marketing

Name.....
Address.....
City.....

$6 a Year
$3 6 Months

Gen Wahr

Garber Field's Gusher Showing Water

Highest daily average estimated production this year, week ended May 30, 2,347,984 bbls. Lowest January 3, 1,911,730 bbls.

Record High Gravity Oil Well Starts Slump. New Promising Areas in California Will Bear Watching

By Andrew M. Rowley

Highest daily average estimated light oil production this year, week ended January 17, 1,525,220 bbls. Lowest July 18, 1,374,173 bbls.

With the Sinclair Oil & Gas Company's No. 19 Hartley in the Garber Field in Oklahoma beginning to produce water, there seems but little doubt that this field is due for a further rapid decline. This well, which had the greatest initial production of high gravity oil of any well ever drilled in the United States, was reported as showing between one-half and 1 per cent water on Tuesday of this week, the water encroachment starting last Sunday and resulting in a decline in production of about 1,300 barrels in two days. The deep sand production in the Garber Field had declined from a peak of 72,000 barrels, reached November 22, to 46,950 barrels on Tuesday of this week, with additional drops expected as the water extends into producing areas. On Tuesday of this week only one important well in the field was not making water.

While it is believed prices of crude oil in different sections of the country will be advanced in the near future because of premium paying in these areas, most oil men feel the industry as a whole would be in far better condition were crude price increases to be delayed for a time. Production is still too high and there are several sections which should be watched carefully as they give promise of opening new producing horizons and fields. This is particularly true in California where much new development will likely follow the opening of the northwest extension of the Long Beach Field and where a fair showing of oil has been found in a well located about 40 miles or so north of San Francisco, far removed from any oil fields.

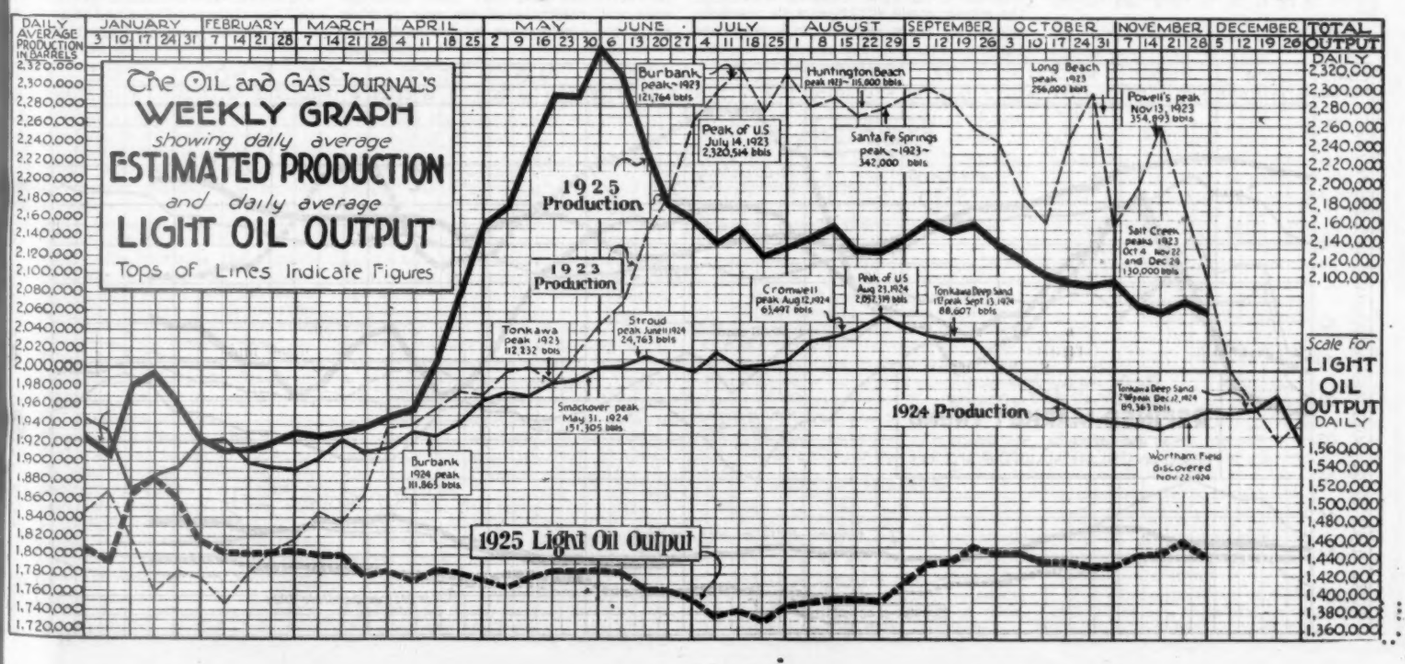
Field operations in all fields east of California showed a decline during November in both the number of wells completed and in the number of rigs and wells drilling, but it must be remembered the opening of a new pool of good size at this time or within the near future would have a depressing effect upon the entire petroleum situation. The decline in production last week probably will be followed by a further drop this week, due principally to the decreased output at Garber. But when it is considered that during the past six months, production of crude oil in this country has been at the rate of 780,000,000 barrels a year, it is not difficult to see the industry could stand a decrease of at least 200,000 barrels a day in production for a long time. And there will not be any such drop, so any price increase would be caused by premiums and not to a need for more crude.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity crude oil in the United States for week ended November 28, and a comparison with the previous week follows:

	Nov. 28		Nov. 21	
	Light	Heavy	Light	Heavy
Oklahoma				
Tonkawa	39,270	.....	44,855	.....
Burbank	48,285	.....	48,370	.....
Other Osage Fields	33,030	.....	33,095	.....
Cushing and Shamrock	22,860	.....	22,840	.....
Bristow and Eastern Bristow	30,990	.....	31,095	.....
Cromwell	22,220	.....	23,060	.....
Papoose	13,990	.....	13,410	.....
Garber	66,010	.....	72,120	.....
Blackwell-Braman	11,295	.....	10,920	.....
Davenport	20,520	.....	19,035	.....
Thomas	16,665	.....	16,580	.....
Northern Miscellaneous	102,165	.....	101,765	.....
Southern Fields	62,185	.....	62,280	.....
Total Oklahoma	489,485	.....	499,425	.....
North Louisiana	44,853	.....	45,225	.....
Arkansas—				
El Dorado and Calion	8,035	.....	8,050	.....
Smackover Light	21,600	.....	21,435	.....
Smackover Heavy	.....	172,655	.....	165,755
Stephens and Nevada	3,095	.....	3,100	.....
Total Arkansas	32,730	172,655	32,585	165,755
North Central Texas	167,500	.....	166,940	.....
Powell	36,200	.....	36,200	.....
Mexia, Currie, Richland, etc.	18,190	.....	20,310	.....
Wortham	14,840	.....	14,260	.....
Kansas	105,490	.....	106,210	.....
Total Mid-Continent Area	909,288	172,655	921,155	165,755
Gulf Coast	.....	95,430	.....	92,265
Southwest Texas	.....	41,435	.....	41,350
Eastern	105,775	.....	104,850	.....
Rocky Mountain Area	104,321	.....	109,577	.....
California—				
Santa Fe Springs	53,500	.....	54,000	.....
Long Beach	107,000	.....	106,000	.....
Huntington Beach	46,000	.....	45,000	.....
Torrance	5,000	27,500	5,000	27,500
Dominguez	26,000	.....	27,000	.....
Rosecrans	25,000	.....	25,000	.....
Inglewood	26,000	44,000	24,000	49,000
Remainder of State	39,000	239,000	39,000	240,000
Total California	327,500	310,500	325,000	316,500
Total United States	1,446,884	620,020	1,460,582	615,870
Grand Total	2,066,904		2,076,452	

→ **Total Decrease, 9,548 Bbls.; L ight Oil Decrease, 13,698 Bbls.** ←


The Oil and Gas Journal's
WEEKLY GRAPH
showing daily average
ESTIMATED PRODUCTION
and daily average
LIGHT OIL OUTPUT
Tops of Lines Indicate Figures
1925 Production
1923 Production
1924 Production
1925 Light Oil Output
Burbank peak ~1923 121,764 bbls
Peak of U.S. July 14, 1923 2,320,514 bbls
Huntington Beach peak 1923 ~ 115,000 bbls
Santa Fe Springs peak ~ 1923 ~ 342,000 bbls
Long Beach peak 1923 256,000 bbls
Powell's peak Nov 13, 1923 354,893 bbls
Salt Creek peaks 1923 Oct 4 Nov 22 and Dec 29 130,000 bbls
Tonkawa peak 1923 112,332 bbls
Stroud peak June 11 1924 24,763 bbls
Smackover peak May 31, 1924 151,305 bbls
Burbank 1924 peak 111,865 bbls
Cromwell peak Aug 12, 1924 63,497 bbls
Peak of U.S. Aug 23, 1924 2,094,319 bbls
Tonkawa Deep Sand (2) peak Sept 13, 1924 88,607 bbls
Tonkawa Deep Sand, (2) peak Dec 27, 1924 89,383 bbls
Wortham Field discovered Nov 22 1924
Scale for LIGHT OIL OUTPUT DAILY
DAILY AVERAGE PRODUCTION IN BARRELS
TOTAL OUTPUT DAILY
JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

Upward Trend in Oklahoma Prices

More Optimistic Feeling on the Part of Sellers Brings Higher Prices in Several Products. Expected Crude Advance a Factor

By Neil Williams

Weathering a two weeks' period of sluggishness with prices remaining steady, the Oklahoma refined market the past week developed greater strength than at any time in the last month. The fact that practically all products, including lubricating oils, were in demand was the feature of the Group 3 market the past week.

While there was not what might be termed a rush to buy, nevertheless orders from both jobbers and marketers were fairly brisk. As a result of this steadily increasing activity some buyers Monday and Tuesday experienced difficulty in covering their needs.

Marketers, in particular, were bidding for Oklahoma refined products the past week, buying heavier than usual for future delivery. Despite the fact that December is more or less uncertain as to weather and market conditions, and that prices for U. S. Motor gasoline now are higher than at any time in the last three months, these marketers in some cases have offered to pay even more than present quotations for purchases over the month.

Judging from offers and purchases made over the month, these buyers have confidence in the holding qualities of the present market strength and expect higher prices during December. Although U. S. Motor gasoline could be purchased Tuesday for 10¼ cents, one marketer is reported to have offered 10½ cents for 25 cars of gasoline for delivery during the month. Purchases at 10¼ cents were frequent.

Oklahoma refiners were more optimistic over the refined market situation the past week than at any time in many months. Prices of U. S. Motor gasoline have shown a steady gain for a month and a half. Devoid of spectacular advances, which react almost over night, the market has continued strong on a sound footing rather than under the influence of a brief flurry.

The fact that the market came through a two weeks' period of slow buying with firm prices added confidence to the situation and caused market students to predict that a continuance of present buying would be sufficient to hold prices strong at least to the middle of December.

A strong point which tends to bear out this prediction lies in the reported comparative empty storage with which many Oklahoma refiners are entering the winter season. Although buying was dull for two weeks one large refiner reported that his stocks in November increased less than 200,000 gallons.

In addition, many other refiners report that their tanks are virtually empty and that they still are forced to load cars direct from their plants in order to keep up with orders. Others report that they have oversold the outlined program of refinery operations for the month.

This position, according to market students, is especially advantageous to refiners at this time of year as they enter their ordinarily slack season, a period when stocks of gasoline usually are accumulated rapidly. Coupled with this, the strong crude situation with possibilities of an early advance with resultant higher refined prices is proving of benefit to refiners.

REFINED MARKET BAROMETER

Higher prices were developments in refined markets generally over the country the past week. Increased consumption, in some products, anticipated advances in crude and more stable tank wagon conditions combined to instill greater confidence in the refined situation. The stronger gasoline situation was reflected particularly along the Atlantic Seaboard where weak markets have centered for some time as a result of a bitter retail competition. In the Middle West and Mid-Continent the gasoline situation is reported especially favorable and the only weak point in the country is on the Pacific Coast. The Atlantic Seaboard gasoline situation was aided by unusually strong kerosene markets. The kerosene strength is attributed largely to the increased demand for furnace oils and export movements. Fuel oils and gas oil were generally stronger, although in the Mid-Continent the latter was slower with offerings more plentiful. Lubricating oils were firm, with a tendency toward higher prices in Oklahoma and the Gulf Coast district. Natural gasolines were firm.

Mid-Continent—Refined products were stronger the past week, with the interest centered in U. S. Motor gasoline. Fuel oil was in good demand with higher prices. Gas oil was slower but firm. Kerosene and distillates were unchanged generally but in north Texas showed greater strength. Natural gasolines were stronger with prices on Grade C higher. Lubricants were active in Oklahoma and firm in other sections.

Atlantic Seaboard—General strength prevailed. The gasoline situation was improved as a result of more stable tank wagon and retail conditions and a tightening of Mid-Continent products. Kerosene gained strength, reflected in additional tank wagon and export advances. Gas oil, fuel oil and lubricants firm with movements steady. Other products unchanged.

Pennsylvania—Pennsylvania refined markets were steady. Lubricant movements improved. Kerosene strong. Gasoline consumption favorable.

Chicago—Refined markets were firm with demand for nearly all products unusually active for this time of year. Kerosene movement fair. Distillates steady but gas oil slower. Fuel oil worries dealers because of increasing spread between refinery and Smackover products. Lubricants inactive.

California—Prices unchanged.

Crude Advance Expected

In reality the crude situation is one of the most important factors in the refined market at this time. It is known fairly generally that the buying done by marketers the past week has been on the strength of possible crude advances, which now are predicted quite freely. Market students seem agreed that only this factor would cause these buyers to stock up at present prices at the beginning of winter.

Exporters still were reported ready to buy higher gravity gasolines but no important purchases of these grades were reported, only scattered cars moving. However, the fact that these gasolines were not readily available was another favorable development in the market situation, helping refiners particulary North Texas, to hold down their stoc

Warm Weather Aids Lubs

The increased demand for lubricati oils the past week was attributed warm weather which prevailed genera throughout the country. While ordinar buyers of lubricating oils in the win turn particularly to Gulf Coast fields, Oklahoma refiner reported that his sh ments of these stocks were greater past week than at any time since S tember.

This warm weather which has creased the demand for Oklahoma lub cating oils is perhaps one of the imp tant factors in the present strength gasoline markets. Consumption of ga line throughout the marketing distr for Oklahoma refineries has held up b ter than usual this year, this being lar ly due to favorable motoring weather.

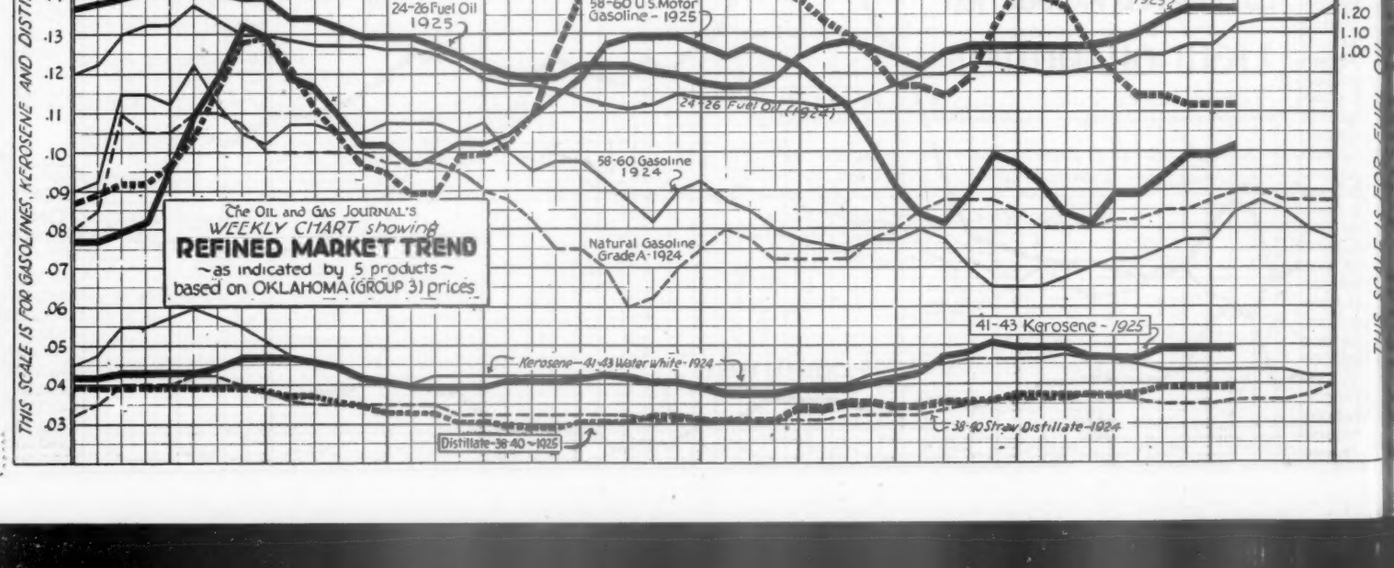
Gasoline and Naphtha

Increased activity in the 58-60 (U. S. Motor) grade featured gasol markets the past week. Speculative b ing on the strength of possible cru and tank wagon advances resulted in vances of from a quarter to a half-c a gallon in this grade, Tuesday, the p vailing market being 10¼ to 10½ ce Most of the spot purchases Tuesday w being made at 10¼ cents but nothi seemed available under that figure, a refiners gradually were raising th quotations to 10½ cents. As mentio previously, offers for December shipme also were made at these prices indic ing a possible continuation of th quotations.

Outside of U. S. Motor gasoline, oil gasoline prices except on the 60-62, product were little changed during week although all were stronger. 60 gasoline was advanced a quarter-c to 11¾ to 12 cents, it being more di cult to find than the 64-66 375 produ which usually leads the high gravities demand. The latter gasoline still co be obtained at 12½ cents. However, 68-70 350 gasoline was tighter at 13 to 13¾ cents than last week.

Movements of 56-58 450 gasoline a 50-52 450 naphtha were fairly good, latter being advanced in price to 9 9¼ cents. Lower natural gasoline pri and an increased demand for blend

(Continued on Page 146)


CENTS PER GAL
JAN. FEB. MARCH APRIL MAY JUNE JULY AUG SEPT OCT. NOV. DEC.
DOLLARS PER BBL
THIS SCALE IS FOR GASOLINES, KEROSENE AND DISTILLATE
THIS SCALE IS FOR FUEL OIL
Natural Gasoline Grade A - 1925
24-26 Fuel Oil 1925
58-60 U.S. Motor Gasoline - 1925
24-26 Fuel Oil 1925?
24-26 Fuel Oil (1924)
58-60 Gasoline 1924
Natural Gasoline Grade A-1924
The Oil and Gas Journal's
WEEKLY CHART showing
REFINED MARKET TREND
~as indicated by 5 products~
based on OKLAHOMA (GROUP 3) prices
41-43 Kerosene - 1925
Kerosene-41-43 Water white-1924
Distillate-38-40 - 1925
38-40 Straw Distillate-1924

Profits and the Average Barrel of Oil

Price of Crude Has Traveled Upward About in Same Proportion to the Increase in Gasoline Recovered

By Charles E. Bowles

The two fundamental problems upon those profitable solution the entire petroleum industry rests are the barrel of crude oil, above ground — and the refined products made from it that, added together, amount to about 97 per cent of the original barrel of crude from which they were made.

The first is the producer's problem. The second is the refiner's problem.

And while, in actual experience it is about as unusual to find the "average" barrel of crude oil (based on the total output of the entire United States) or the average barrel of refined products (based on the same statistics) as it is to find a man of the average heighth, or the average weight. Ninety-nine out of every hundred men we meet in our day's journey are either taller or shorter than the average man—and weigh either more or less than the average man.

And 99 per cent of the wells of the United States produce either more or less than the daily output of the "average" well which in 1924 yielded 6.5 bbls. of crude oil.

Average Per Refinery

And out of any hundred refineries that you might pick out, probably not more than one of them would, in 1924, have averaged exactly 33.3 per cent gasoline—or exactly 49.2 per cent fuel oil—to say nothing of producing the exact percentage of all of the products that the annual report of the Bureau of Mines showed was recovered from the average barrel of crude oil in 1924.

It is practically a certainty that not a single refinery in the United States produced, last year, the exact percentage of each of the refined products that the "average" barrel of oil yielded.

Each of the 500-odd refineries got a larger yield of some products and a smaller yield of others than the "average" barrel yielded.

And, due largely to the cracking processes, what we get out of the "average" barrel of crude oil today does not depend wholly upon the quality of the crude that goes to the refinery—as it did in the old days.

And so—in the oil industry—we have the "average" barrel of crude oil—and the average barrel of refined products. And while the average producer and the average refiner is so deeply absorbed in his own pressing problems that he does not give the "average" barrel more than a fleeting thought, the fact remains that the oil industry as a whole is based on the average barrel of crude oil and the products made from it.

And without minimizing the position of the industry of the "small" producer and the "small" refiner, both of whom are vital, it is only fair to say that the chief problem of the "big" companies is to try to keep the industry from getting too far "out of balance"—and that the products made from the "average" barrel meet the needs of the market.

Increased Recovery

For example—in the first nine months of 1925 the average barrel of crude oil that was run to stills yielded 34.6 per cent gasoline. For the year 1924 it yielded 33.1 per cent—and 31 per cent in 1923—26.8 per cent in 1920—21.5 per cent in 1917—and 18.6 per cent in 1914. This increase in recovery—86 per cent in 11 years—is amazing, even as an isolated fact.

And if we then approach the industry from the standpoint of the production of crude oil we find that in the first nine months of 1925 the average production was 2,085,000 bbls. a day—and in the year 1914 it was 728,000 bbls. a day—or an increase of over 187 per cent.

Adding these two facts together we have crude oil produced in 1925 at almost three times the rate it was produced in 1914 and the more impressive fact that the "average" barrel is today giving up 86 per cent more gasoline than the average barrel in 1914.

And then we add the third factor—the price of the average barrel—and find that from 1914 back to the year 1902 the price of the average barrel of crude oil was just under 80 cents while the price for 1924 was $1.43.

Crude Prices Higher

Conceding that conditions during and immediately following the World War were abnormal—and making due allowances therefor—we find that, over measurable periods of recent years, the price of the average barrel of crude oil has traveled upward at something like the same rate as the percentage recovery of gasoline.

We know, of course, that the quality of the oil from different fields varies—and that the output ebbs and flows. For two years the pendulum of the country's total supply of crude has been swinging away from an unusually high average gravity to a somewhat lower gravity. But because our daily output is so huge, and so many kinds of crude are produced in so many widely separated fields, these swings of the pendulum are very gradual. In the face of these slow changes in the gravity and the refinability of the average barrel of crude oil, whether upwards or downwards, the refiner has kept on, year after year, getting a constantly increasing amount of gasoline out of the average barrel of crude oil.

Referring to the accompanying table we find that up to the end of 1880 the fields had produced 158,000,000 bbls. of oil worth, at the wells, $330,000,000—or an average price of $2.15 a barrel. For the next 10 years (1881-1890) the price averaged 80 cents a barrel—and for the next 10 years (1891-1900) it averaged 84 cents a barrel.

In these 42 years we produced a billion barrels of oil, worth a billion dollars—or $1.02 a barrel.

In the next 15 years we produced 2,612,000,000 bbls., worth $1,944,000,000 or an average of 74 cents a barrel.

Production and Value of Crude Oil Produced—and Wells Drilled, by Periods, Since 1859

Period	Barrels produced	Value at well	Average per bbl	Wells completed	Dry holes
1859-1880	158,152,000	$330,410,000	$2.15	31,036	.....
1881-1890	292,486,000	233,812,000	.80	37,668	.....
1891-1900	552,967,000	462,717,000	.84	95,153	.....
42 years	1,003,605,000	$1,026,939,000	$1.02	163,857	*32,000
1901-1905	510,415,000	$417,622,000	$ .82	76,376	15,287
1906-1910	863,844,000	597,860,000	.69	84,873	16,242
1911-1915	1,238,697,000	928,967,000	.75	90,489	18,397
15 years	2,612,956,000	$1,944,449,000	$ .74	251,738	49,926
1916	300,767,000	$330,900,000	$1.10	24,453	6,180
1917	335,316,000	522,635,000	1.47	23,111	5,410
1918	355,928,000	703,944,000	1.97	25,763	5,830
1919	378,367,000	760,266,000	2.01	29,373	7,020
1920	442,929,000	1,360,745,000	3.07	34,008	8,080
5 years	1,813,307,000	$3,678,490,000	$2.03	136,708	32,520
1921	472,183,000	$814,745,000	$1.72	21,848	4,910
1922	557,531,000	895,111,000	1.60	24,690	5,770
1923	732,407,000	978,430,000	1.34	24,438	5,400
1924	713,940,000	1,022,683,000	1.43	21,896	4,910
4 years	2,476,061,000	$3,710,989,000	$1.50	92,872	20,990

*Estimated at 20 per cent of total wells completed.

In these 15 years the automobile business was establishing itself—and during these years the source of its motor fuel cost an average of 74 cents a barrel.

In the five years covering the World War, and the "deflation" immediately following (1916-1920) we produced 1,813,000,000 bbls. of crude oil, worth, at the wells, $3,678,000,000—or an average of $2.03 a barrel. Within this period falls the wild speculation and the inflated prices of 1920 when the average price of crude oil for the entire country was $3.07 a barrel.

Two Billion in Four Years

In the last four years (1921-1924) we produced 2,476,000,000 bbls. with a total value of $3,710,000,000—or $1.50 a barrel.

Undoubtedly the introduction of electricity, that marked "the beginning of the end" of the kerosene era, was reflected in the lower average price of crude oil as surely as the development of the automobile is reflected in the slow increase in prices.

Omitting all discussion of "short swings" of prices due to local conditions, that have occurred in every area in the United States—and also the discussion of price differences, due to inherent differences in the crudes produced in different areas—the conclusion seems inescapable that the price of the average barrel of crude oil has traveled upwards roughly in proportion to the increase in gasoline recovered, whether the recovery is due to straight run fractionation or to cracking, or both.

In analyzing the "average barrel values" as set forth in the accompanying table, full consideration must be given to the abnormally high average price ($2.15 a barrel) for the production from 1859 to 1880 which antedated the advent of electricity and within which "coal oil" enjoyed a natural monopoly as a source of illumination. We must also give due consideration to the prices ruling during the World War—and more especially the two years immediately following.

Effect of Automobile

Making these two exceptions, we find that instead of electricity as a competitor of kerosene, as was true a generation ago, we have, in the automobile industry, our most powerful ally. Today we have the "industrial combustion engine industries" boosting the value of gasoline in comparison with electricity depressing the value of kerosene a generation ago.

As a matter merely of statistics it is interesting to note that since 1859 we have produced 7,905,000,000 bbls. of crude oil, worth, at the wells, $10,360,000,000, or an average of $1.31 a barrel.

Directly connected with these figures is the fact that in this time we have drilled over 645,000 wells of which approximately 135,000 were dry holes.

Up to the end of 1915 about 20 per cent of all the wells completed were dry holes. From 1916 to 1920 the average was 24 per cent—and from 1921 to the end of 1924 it ran something less than 23 per cent.

More Dry Holes Drilled

In other words, the percentage of dry holes, during the last nine years is greater than during the previous 56 years — powerful proof that the quest for "new" oil is pressing—and costly.

That the cost of the average well has "gone up," not in arithmetical ratio, but in geometrical ratio, as the wells have "gone down" to deeper horizons, is known to every producer of crude oil.

The era of "deep drilling" really started with our entrance into the World War—but didn't stop with its close. And, without question, the average of the 92,000 wells drilled from 1921 to 1924, or of the 136,000 wells drilled from 1916 to 1920, cost from two to three times as much as the average of the 251,000 wells drilled from 1901 to 1915—and several times as much as the average of the 163,000 drilled up to the close of 1900.

Thus we have a fourth factor which more than offsets the third factor, or the increased value, during recent years, of the average barrel at the well.

Greater Producing Cost

Referring again to the table, and the period from 1901 to 1915 in which we produced 2,612,000,000 bbls. of oil at an average value of 74 cents a barrel. In the four years (1921-1924) we produced approximately the same amount of oil (2,476,000,000 bbls.) at an average value of $1.50 a barrel. There can be no question but that it cost substantially more than twice as much to produce the 2,476,000,000 bbls. of oil at $1.50 during the last four years as it did to produce the 2,612,000,000 bbls. at 74 cents a barrel from 1901 to 1915.

The memory of the frenzy of 1919 and 1920 is still clear—and if it were possible to assemble the records of all of the producing companies (and not of just a few successful ones) for these two years, and from these records of all of the companies that produced crude oil make up a consolidated balance sheet, it would undoubtedly show that, even though the average price of crude oil was $2.01 a barrel in 1919 and $3.07 in 1920, the increased costs of labor, material, etc., were such as to deprive the industry of at least a large part, if not really all, of the profits that the general public, unfamiliar with the oil industry, probably thinks came to it during these two fateful years.

It would appear from the foregoing that the refiner and the producer have traveled in somewhat parallel paths during the last dozen years.

The refiner is today getting 86 per cent more gasoline out of the "average" barrel whose value at the well is about twice as much as it was in 1914.

And the producer is getting twice as much for the "average" barrel that is costing him at least twice as much to produce as in 1914.

The relative positions of both producer and refiner are, therefore, not substanti-

(Continued on Page 31)

Garber's Peculiarities Are Puzzling

The Incrsasing Water Added to Geological Uncertainties Have Production Departments Guessing

By C. D. Lockwood

"The king is dead—long live the king." While these solemn words may exaggerate the serious illness which has overtaken the reigning monarch of the petroleum business in the Mid-Continent area, the Garber Field of northern Oklahoma, and may be somewhat premature, the consensus of opinion among those who are following developments closely is that the end is in sight. This feeling of mingled despondency and relief (depending, of course, on whether or not your company is a leaseholder in the field) is due to a combination of events that have occurred during the past few days. Not the least of these is the appearance of water in the Sinclair Oil & Gas Co.'s No. 19 Hartley, the well which was rapidly making a reputation for the name Hartley in the petroleum world about on a plane with the name Grange among the followers of the pigskin, and No. 19 was becoming almost as much of a magic number as the famous "77" on the back of the "Red Rambler."

Last Sunday, however, the great producer revealed a half of 1 per cent water by centrifugal test, and Monday morning's gauge was 1,000 bbls. of oil less than the previous day, while the water test was up to 1 per cent. On Tuesday morning, the oil gauge for 24 hours was 13,745 bbls., a decline of 395 bbls., from the Monday figure, and a decline of 1,291 bbls. from the 24-hour record ending Sunday morning.

Sinclair officials said Tuesday morning that there was only a trace of water, the exact percentage of which had not been determined. Students of the field, however, regard any amount of water whatever as a sign that the end of the well's big production is at hand, basing their theory on the performances of other gushers in the field which were absolutely free of water until a short time before they went to pieces.

The No. 19 Hartley can quit altogether, however, and still be counted as having been a great producer, having already tanked nearly a quarter of a million barrels of high gravity crude. Its total accumulated output in its 15½ days of life up to Tuesday morning was 239,231 bbls.

It is surprising, in a way, that the water had not intruded in No. 19 Hartley before this. The Roxana Petroleum Corp.'s south offset to it, No. 5-W Schroeder, started showing water in small amount November 24, and on Monday, November 30, was making 300 bbls. of water along with 6,000 bbls. of oil. On the west side, the Sinclair's No. 23 North Walker tested 1 per cent by the centrifugal method the day before Thanksgiving, and on Monday was producing 100 bbls. of water with 3,000 bbls. of oil.

No. 19 Hartley Is Peculiar

The Sinclair's big well is in many ways, aside from its enormous production, different from other wells in the field, so previous experience with other producers may not be reflected in this case. For one thing, it is believed that No. 19 Hartley is located directly in a fault, as shown on the accompanying map of the field, which is contoured on the Siliceous lime, Ordovician. If that is true, there is no telling what may happen to it, for the water may not increase beyond its present insignificant amount, and on the other hand, the well is liable to go dead completely at any time. As mentioned above, the water on two sides of it has not seriously injured these wells, although the diagonal offset to the southwest was down to 712 bbls. of oil Monday and was making 404 bbls. of water. On November 16, this offset produced 4,500 bbls. of oil and 5 bbls. of water.

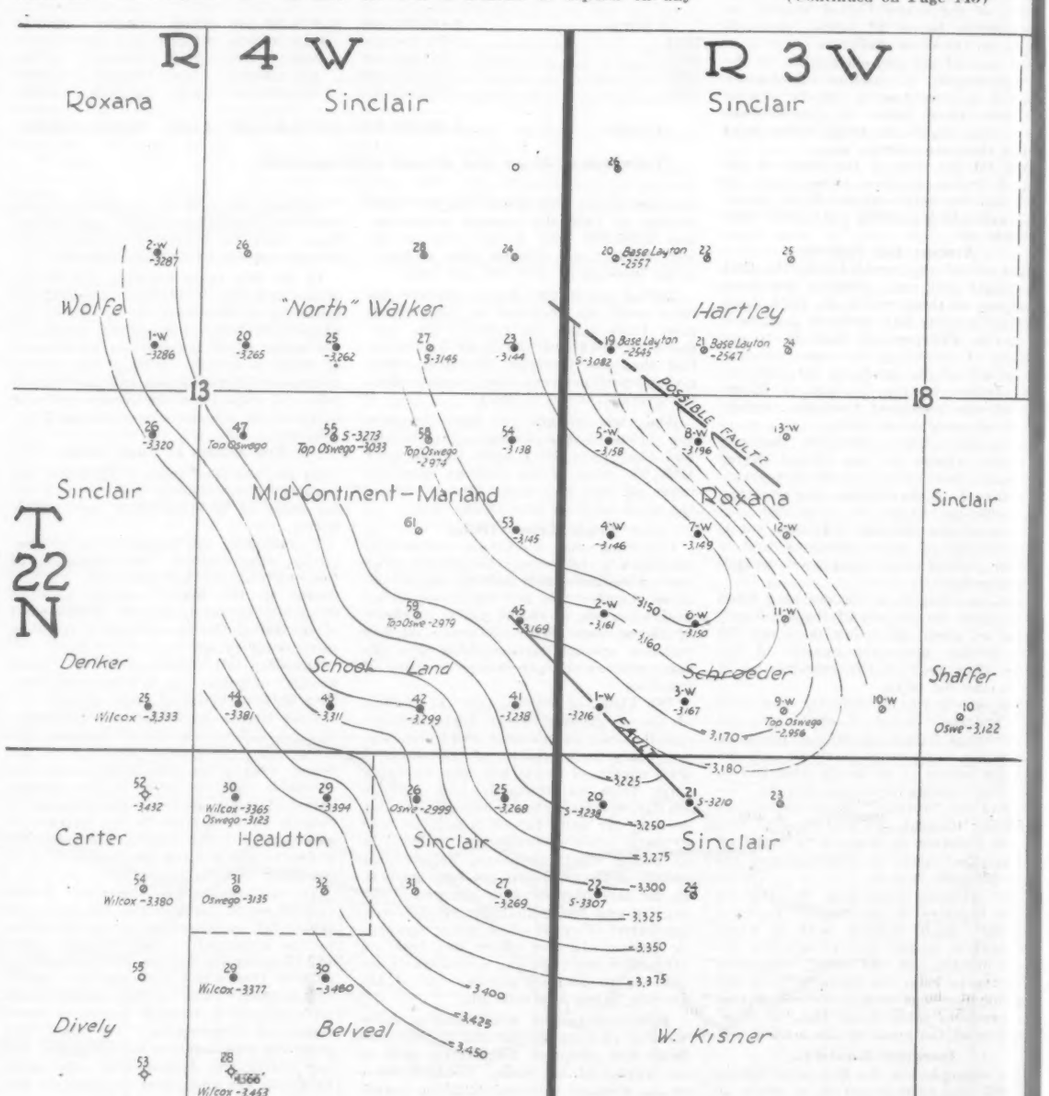
Fault Theory Strengthened

The theory that a fault traverses the northeast edge of the present deep sand producing area was strengthened Monday when data were obtained on the base of the Layton sand in the Sinclair Oil & Gas Co.'s No. 20 Hartley and No. 21 Hartley. The base of the Layton provides a reasonably reliable marker and it can be seen on the contour map that something is wrong in the direction of No. 21 Hartley, considering the northeast dip across the north end of the Schroeder lease. The Roxana's No. 4-W Schroeder is the highest well on that lease. No. 5-W and No. 7-W are apparently nearly on a strike, with 5-W just 9 feet lower than No. 7-W, while No. 6-W and No. 7-W are practically on the same contour line. Something, therefore, has forced the base of the Layton sand above where it would normally be expected in No. 21 Hartley, and this is thought to be a fault. The north dip from No. 7-W Schroeder to No. 8-W is 47 feet.

Considering the fact that there is just 6 feet difference between the Sinclair's No. 23 North Walker and the Marland-Mid-Continent No. 54 School Land, highest well in the field with the exception of Sinclair's No. 19 Hartley, the exceedingly high structural position of the latter well is difficult to explain on any other grounds than that of a fault in t approximate position shown on the m

Another peculiar feature of the Gar Field is the fault shown through Roxana's No. 1-W Schroeder, the M land-Mid-Continent's No. 45 School La and the Sinclair's No. 21 Kis Whether this fault extends northwe ward through the School Land lease possibly on up into the Sinclair's No Walker property is a matter of c jecture and will be until considera more data are obtained. Something evidently wrong in the south part of North Walker lease because the No. North Walker, which was drilled in couple of days ago, found the Silice lime only a foot lower than No. 23, wh

(Continued on Page 145)



The above map of the deep sand wells in the Garber Field is contoured on top of the Siliceous Lime. The contours represent the interpretation of the geologists for one of the largest operating companies in the field. The contour interval is 10 feet between the two fault lines, and 25 feet south and west of the lower fault.

Davenport Has Unique Characteristics

No Dry Holes Drilled in the Field Which Produces Crude of 53 Gravity. Many Difficulties at the Start

By J. L. Dwyer

Ever since the birth of the petroleum industry every oil field has had its individuality expressed by the presence of many characteristics distinctive of its own development, and foreign to all other fields. The Davenport Field, in Lincoln County, Oklahoma, is no exception, for it is 14 months old, has 75 completed wells producing within its borders, and no dry holes.

The discovery well in this field was drilled into the pay sand on September 17, 1924, and from that time until November 1 of this year the field has produced 2,008,242 bbls. of oil.

Davenport is an unusual field in many respects. Its progress was slow in comparison to the usual alacrity displayed in drilling up productive territory. The "slow motion" of the field antedates its producing history for the transaction which resulted in drilling the discovery well was a slow, painful deal for the wildcatters whose enterprise is responsible for the story of the Davenport Field.

The firm of Morgan & Flynn of Tulsa, Okla., must have the credit for Davenport, and their laurels were hard won. In starting the first well to be drilled in this region, impediments met them at every angle. The history of the Davenport Field began in 1923, when Morgan & Flynn assembled a block of 1,500 acres of leases. Immediately after the leases were obtained, a geologist was sent to map the block, and the first chapter of grief was written. After a reconnaissance, the geologist presented a map which failed to check with geological maps owned by the companies who were prospective purchasers of acreage close to the well, and a veritable battle of rock hounds followed in which contours and outcroppings were hurled at will. As a result of these difficulties, a more experienced firm of geologists was engaged and this time a map was presented which conformed to the structural ideas of the majority of oil companies, and as a result, the sale of acreage was started.

Hard to Sell Acreage

The second installment of worry was encountered by the dauntless wildcatters in the disposition of acreage around the well. It was looked upon as territory unfavorable to production, and there followed a trying experience for the operators before sufficient acreage could be sold to insure the starting of the well. The first well drilled in this region was a failure, and was dry and abandoned at a total depth of 4,474 feet. It was drilled in the southeast corner of Section 2-14-5, and at the present time production has gradually crept towards it until it is now only a quarter mile away from a producing well.

After the failure of this well, the firm moved a rig a mile and a half northwest and started a hole in the southwest corner of the southeast quarter of Section 34-15-5, and this was destined to be the discovery well of the pool. The well had the usual number of difficulties incidental to wildcat wells, and as a crowning feat, the derrick was blown down. The well was drilled into the sand with an initial production of 250 bbls. a day.

One point of interest in showing the manner in which many transactions are conducted in the oil industry, is that Morgan & Flynn received an 80-acre lease from the Magnolia Petroleum Co. They drilled upon this lease, and gave in exchange for it acreage farther away from the well. The agreement was never placed on record, and the lease was never recorded. Afterwards when the well was completed the Magnolia Petroleum Co. bought out Morgan & Flynn and obtained possession of the lease which had always been in its name on the records.

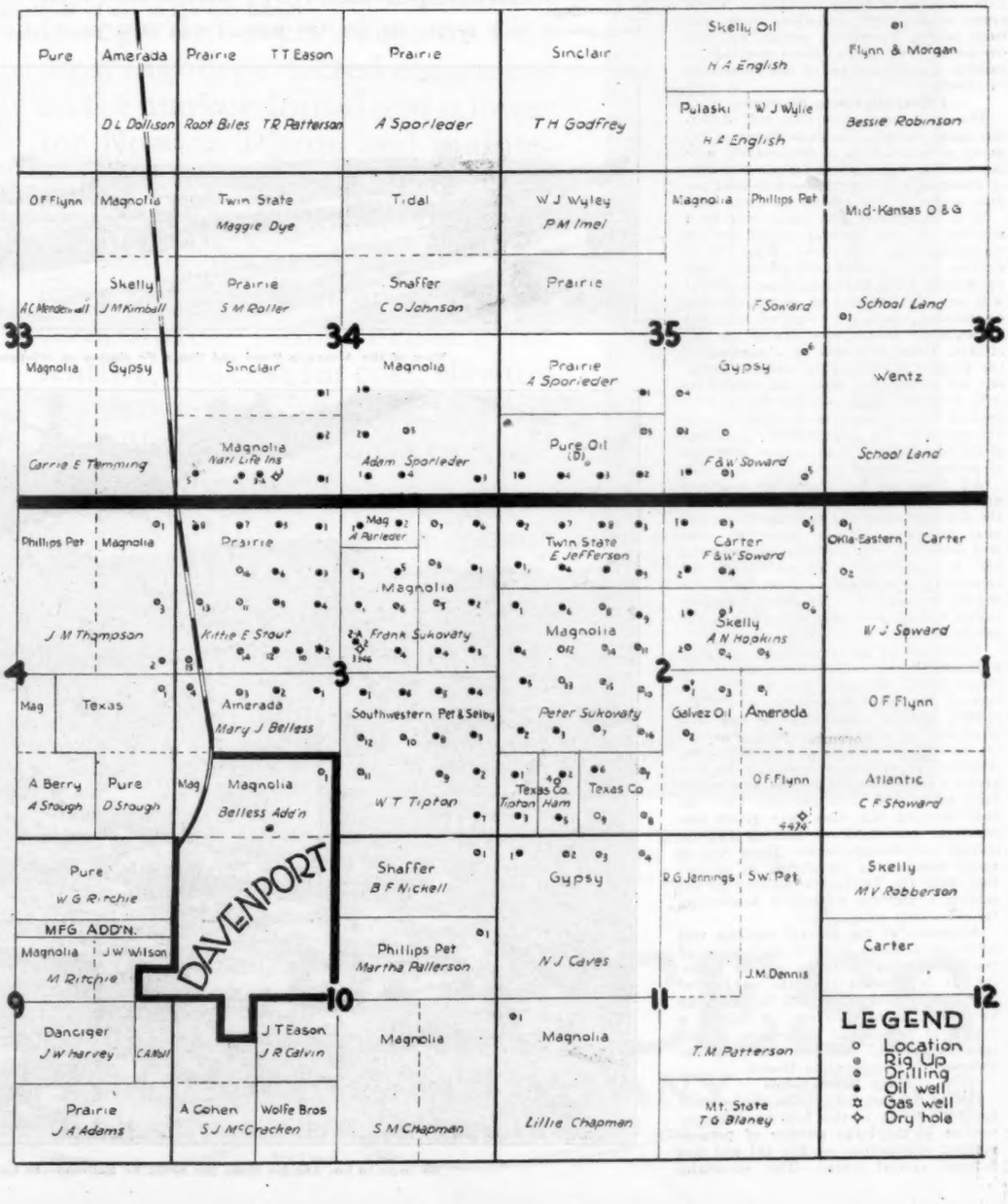
High Gravity Production

The Davenport Field has slowly grown until today it is producing more high gravity oil than any field in Oklahoma. On Monday of this week it produced better than 20,000 bbls. Its growth has been slow, and the spread of its area marked by the greatest caution due to the opinion of many companies that the pool was a freak and that a lenticular condition of the sand caused the production of the wells. In spite of the gradually mounting production of the pool, it was not until after it was eight months old that there was any intensive development there, and yet Davenport has always been a model field, and there has never been a barrel of oil produced there that was under 45 degrees gravity and the average gravity is 47 degrees. It is the largest field of exceptionally high grade oil that has been witnessed in many years.

In addition to the oil produced from the Prue sand which runs from 45 degrees upwards, there is another horizon which has been productive in the Davenport Pool, and that is a sand found at 2,600 feet by the Prairie Oil & Gas Co. in its No. 6 Stout. This sand contained an oil of such high gravity that it was never put into the pipe line, but was shipped in tank cars to the Producers & Refiners refinery at West Tulsa, and refined there. The gravity of the oil was slightly better than 53 degrees, and the well started flowing at the rate of 450 bbls. a day when first drilled into the sand. It gradually dropped to its present figure of approximately 75 bbls., which it is doing today. The sand in this well is considered a stray by most of the geologists, and has not been productive in any other well in the pool, but this one well has been highly profitable to the owners.

The discovery well in the Davenport Field was drilled on the structural map of Wood & Wood, geologists of Tulsa. Their map showed a terrace condition 1 mile north and south and open to the east. The discovery well was drilled into the Prue or Squirrel sand at 3,400 feet. The Prue sand is often confused with the Peru sand which is productive south of Bristow. These two sands occupy adjacent positions in the earth's beds, and a geological cross section shows that position of the Peru to be above the Oswego lime, and the Prue to be immediately be-

(Continued on Page 132)



Institute Group Sessions Important

Discussion of Specific Subjects Will Probably Feature Los Angeles Convention. Big Attendance Is Assured

While details of the program for the sixth annual meeting of the American Petroleum Institute, to be held at the Biltmore Hotel, Los Angeles, Calif., January 19, 20 and 21, are being worked out, there is every evidence that the coming meeting will be one of the largest in point of attendance and one of the most successful in point of interest, both within and outside of the industry.

Each successive year, and particularly during the past two or three years, the annual meetings of the Institute have gathered importance and achieved a character wholly representative of the industry.

No small part of the appeal of the annual meeting to the oil man, in whatever branch of the business he happens to be, is due to "coverage" given the many phases of the industry, and without minimizing the importance and the interest shown in the general sessions it is now apparent that the group sessions on specific and often technical subjects are of outstanding importance. These group sessions are occupying more and more of the convention period, and the discussion developed at these meetings is making the attendance of the specialists expedient.

Important Group Sessions

The Los Angeles meeting will doubtless again signalize the importance of the group sessions. This is particularly true inasmuch as the work of certain divisions of Institute activity has been focused for final action at the annual meeting.

It is understood that there will be a meeting of the general committee on standardization and improvement of oil drilling and production methods and equipment, when final committee approval will be given reports of standardization committees which have reached form for presentation to the directors of the Institute. There will also be a meeting of the general committee on uniform methods of accounting when the committee will probably agree on the form of a general balance sheet to be submitted to the directors for approval. It is understood that there will be several meetings of technical committees.

All these special committee meetings are planned for Monday, January 18—the day preceding the opening of the annual meeting—although some of them will doubtless continue into the following day. It is possible that in addition to the committees mentioned, a meeting of the general committee on railroad transportation will be held, as well as one of the public relations committee.

There will be group sessions on standardization of oil field methods and equipment, which sessions have been a feature of the last two meetings of the Institute, and have attracted the attention of oil field operators throughout the country as well as equipment manufacturers. Another important series will be the group sessions on motor fuel and motor lubrication, and it is probable that the next meeting will also have group sessions on household oil heating and on storage and transportation. There will be group sessions on accounting in connection with the Institute's activity in designing a uniform method of accounting for petroleum companies.

Addresses at the general sessions will cover in a more general way some of the outstanding problems of the industry. It is possible that the subject of petroleum conservation will be taken up by one or more speakers, as this is a matter of preeminent importance at this time in view of the functioning of the Federal Oil Conservation Board.

Many Reservations

One of the best indications of the widespread interest in the Los Angeles convention is the large number of persons making reservations on The Oil and Gas Journal special trains. The entertainment scheduled at Albuquerque, New Mexico, during the six-hour stop in that city, and the arrangements made for a full day's visit at the Grand Canyon, are attractions which oil men and their families are finding it hard to pass up. And when, in connection with these, the opportunity of being associated during the transcontinental trip with friends and leading oil men from all sections of the United States is considered, the desire to make the trip on these special trains over the Santa Fe Railroad is proving irresistible.

As has been stated in a number of letters received by The Oil and Gas Journal, the plan to have oil men and their families from all sections of the United States make the trip to the convention together, where they may become better acquainted during the long trip; renew old friendships; make new acquaintances; and discuss features connected with the business in different areas is a lifetime opportunity of which everyone should take advantage.

Arrangements made by The Oil and Gas Journal and the Santa Fe Railroad permit this plan to be followed completely. Everyone making reservations on The Oil and Gas Journal specials will be routed to Newton, Kansas, where the special trains will be made up and from which point they will start to Los Angeles. Owing to the competitive railroad rates in effect for the convention, the railroad fare from any section of the country, by way of these special trains, will be the same as from that same district over any other railroad. In other words, while the route from certain cities in a few districts may be shorter by some other railroad, the railroad fare from these cities will be the same over the Santa Fe Railroad and on The Oil and Gas Journal specials as over the railroad having the shorter route.

Reservations for The Oil and Gas Journal special trains are being made at all Santa Fe Railroad offices throughout the country and at the various offices of The Oil and Gas Journal.

Special cars will be run by the Santa Fe Railroad from those points where sufficient reservations warrant and eastern railroads will operate special Pullman cars from different eastern cities to connect with the special trains at Newton. From the number of requests for reservations already received from cities in Texas and Oklahoma, it is probable a number of special cars will be attached to trains from these areas, all these special cars being made part of The Oil and Gas Journal specials from Newton to Los Angeles. This arrangement will have the effect of special train accomodations from a number of cities throughout the country and will permit those making reservations to enjoy this extra comfort and convenience.

For those oil men and their families who have never seen the famous Indian dances of New Mexico and the renowned rodeo of the Great West, the entertainment planned by the city of Albuquerque will be an eye-opener. Dances arranged only for special occasions and given only once every two years are included in the program while the best known riders in the country will participate in the rodeo.

View of the Alvarado Hotel and Santa Fe station at Albuquerque, New Mexico.

En route to Los Angeles along the Santa Fe Railroad—El Cajon Pass, California.

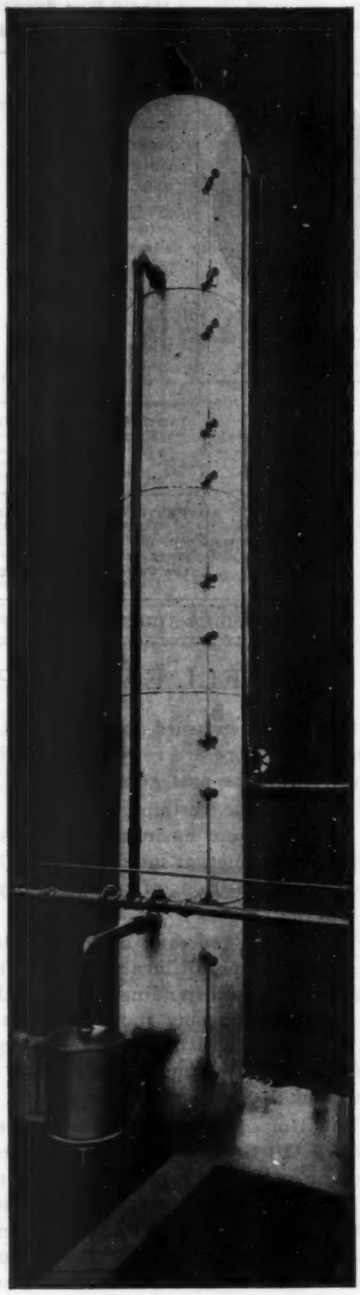
For low-cost gasoline

Choose the equipment that has demonstrated its superiority in every respect. Visit a Newton Plant.

Newton absorption plant equipment at the time of its introduction to the Oil Industry was instantly recognized as a big step toward efficient, economical manufacture of gasoline.

Today, by reason of constant improvements, Newton Equipment is regarded everywhere as the most highly perfected equipment on the market. Initial cost is lower for Newton Plants and maintenance is correspondingly low. Newton Plants are money makers for many wise operators who have bought them on a strictly comparative basis. Feature for feature, and cost for cost, Newton Plants are without a peer in their field. We ask you to make us prove this statement.

Newton Plants may be moved with full salvage value. They are as portable as it is possible to make absorption gasoline plants.



NEWTON FEATURES

1. We manufacture and design plants in any capacity to meet your particular requirements, and the plant is sold *without royalty*.
2. Your investment is about one-half the amount required for the ordinary plant and can be erected in about one-half the time necessary for most plants.
3. Operating expense is less. Plants in California are operated by the pumpers, who receive a slight increase in salary to keep water in the boilers and pumps lubricated.
4. Newton Equipment is GUARANTEED to extract 100% of a charcoal test.
5. The salvage value is almost 100%. The entire plant can be moved quickly at nominal cost.
6. The operating pressure can be anything from 3 pounds upward. This allows a slight well pressure to operate the plant without installing compressors. Plant will return its investment before machinery is necessary.

REPRESENTATIVES

HURLEY BROS.,
Kennedy Bldg.,
Tulsa, Okla.

REFINERS CONST. COMPANY
Transportation Bldg.,
Los Angeles, Calif.

TOM McGUIRE
First Nat'l Bank Bldg.,
Denver, Colo.

NEWTON PROCESS
MANUFACTURING COMPANY
FULLERTON, CALIFORNIA

The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

Published Weekly by
THE PETROLEUM PUBLISHING COMPANY
114-116 West Second Street
TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle

President - - - - - - - - - - - Frank T. Lauinger
Vice President and General Manager - - Robert W. Egan
Treasurer - - - - - - - - - - - - H. J. Bryan
Secretary - - - - - - - - - - - - W. T. Bryan
Editor - - - - - - - - - - - - James McIntyre
News Editor - - - - - - - - - - Andrew M. Rowley
Associate Editor - - - - - - - - - W. T. Anderson
Refinery Editor - - - - - - - - - - C. O. Willson
Advertising Manager - - - - - - - - Clarence Morris
Circulation Manager - - - - - - - - J. P. Mulkern

DISTRICT ADVERTISING OFFICES
30 Church Street, NEW YORK — 1223 Peoples Gas Bldg., CHICAGO, ILL.
PITTSBURGH, PA., 1003 Jones-Law Bldg.

TERMS OF SUBSCRIPTION
(By Mail, Postage Prepaid)

Single copies	$ .15	One year (in United States)	$6.00
Three months	$2.00	One year (in Canada)	$7.00
Six months	$3.00	One year (foreign countries)	$7.00

ADVERTISING RATES ON APPLICATION
Telephones: 6291-6292-6293
Remittances by Checks, Drafts, Express or Postal Money Orders should be made payable to
The Petroleum Publishing Company
Cable address, "Oilgasnal"

MEMBER AUDIT BUREAU OF CIRCULATIONS

A WELL EARNED PROMOTION

It is too often heard nowadays that with the growth of modern corporations there are fewer opportunities to rise to the top than there were in the past generation.

It is not true, certainly not in the oil industry. There is probably no industry or business in which there is a greater number of young men, or men of middle age, at the head of great enterprises or occupying positions of responsibility and power who have come up from the ranks.

This is not generally understood by the outside public which still thinks of the oil business as a "close corporation" dominated by a few. Notwithstanding the growth of great rival companies like the Gulf Company and The Texas Company, the average man who has never taken the trouble to inquire for himself persists in believing there are but two names in oil, "Standard" and Rockefeller, and that one means the other.

The United States Supreme Court decision splitting the old Standard Oil Company into 34 separate units was taken by many to be but a legal gesture without effect one way or the other. The fact that the divided companies continued to exist and even prosper amazingly was considered by the uninformed public as proof of that. No credit was given for this prosperity to the immense development of the use of oil since the dissolution and no account was taken of the fact that outside oil companies similarly grew and prospered.

Popular lack of knowledge about the oil business also ignored the evident fact that this enormous development in business required new capital and that the oil companies in the past dozen years have attracted thousands upon thousands of outside investors.

The managements of these companies, Standard as well as independent, found themselves responsible to greatly broadened holdings by stockholders who knew little and cared less about the ancient antagonisms in the oil business and were insistent only upon efficient and profitable administration.

This put the executives upon their mettle to produce results satisfactory to their stockholders and obliged them to compete with one another regardless of whether they were formerly Standard or otherwise. Some of the public may have refused to believe th but it is well known and recognized in the oil business as a fact.

At the same time the veterans of the old days were retiring being removed by death. The management was perforce transferr to younger heads and hands, and in most cases to men who h risen from minor employment, winning recognition by sheer for of character and demonstrated ability.

The Standard of Indiana, for example, prides itself upon t number of its directors who have risen from the ranks. Around t board of many others, as at the tables of most oil companies toda the most active men are usually those who have had person practical training in the business.

The late A. C. Bedford, chairman of the board of directors the Standard Oil Company of New Jersey, was a notable illustr tion. The tributes paid to his memory both within and without t industry were deserved. He had earned his position by individu merit, conspicuous ability and capacity for hard work.

These are characteristic of his friend and successor, George H Jones, unanimously chosen for the vacant seat by his fellow d rectors while in Europe, enjoying his first vacation in 30 years.

The record of Mr. Jones' career from the humblest beginnin step by step, without influence save his own competence, is a con vincing demonstration that even in the parent company of th Standard group there is no royal road to preferment, no "clos corporation" forbidding admission to its innermost councils a popular imagination has so frequently pictured.

The new chairman of the board, beginning as a boy worker i a chair factory and knitting mill, graduating as office boy in a insurance office, and equipping himself by study at night for hi future career, certainly had none of the advantages that publi opinion might suppose were required for ascent to his present pos

The youth of today, complaining of lack of opportunity, shoul read how this boy who had never seen a typewriter in those earl days, made a cardboard keyboard from a picture in an advertis ment and practiced so assiduously he was able to hold his ow when tested on his first machine. How many of the rising genera tion would have the ambition and persistence to think of that ex pedient in a like case and the determination to stick to it?

His mastery of shorthand and study of law at night were at tained by similar will power typical of his whole career. In lik manner he familiarized himself with every aspect of his wor that presented itself, whether it was the development of natura gas, or the intricacies of litigation and finance.

A young man with this zeal for knowing his work was certai to attract the attention of his superiors as the man who know always does. Promotion naturally followed, since executives ar constantly on the lookout for men who display ability to shar labor and responsibility. Each new position was welcomed by Mr Jones as a new point for study of the company's activities. A extraordinarily retentive memory enabled him to store facts an figures which, with his gift for analysis and comparison, continually amazed his associates.

During the dissolution litigation his early study of shorthand and the law proved invaluable in the taking of voluminous note and their transcription in correct legal phraseology. His years o study of the details of the company's business were also fruitfu in the preparation of the case. His fund of information and th diligence in acquiring it marked him out for further advancement.

The selection of Mr. Jones for chairman of the board of di rectors, of which he has been a member since 1917, was regarded within the company as the natural evolution. For years Mr. Bedford and Mr. Jones had been associated in successive positions. But there was vastly more to the choice than that. It has been recog nized for years that the treasurer of the company had an excep tional grasp upon the problems of business and finance, peculiarly those with which a chairman of a board has to deal. This relieves President Teagle, as the operating executive, free to pursue his work wherever it may take him.

The New Jersey company is to be congratulated upon this division and combination of responsibility which was so successful during the late Mr. Bedford's tenure of the chairmanship and is certain to be equally so with Mr. Jones at the head of the board.

North-Central Texas Field

By George R. Kelley

Another distinct pool seems to have been opened in Archer County by the well of Caldwell and associates, which has been swabbing at rate of 450 bbls. daily before completion. Other good wells completed in that county. Less wells completed than during previous week.

FORT WORTH, Texas, Nov. 30.—A new well in Archer County gives promise of the opening up of another distinct producing pool in that already prolific oil producing county. Caldwell and associates have brought in a new well, which has not yet been completed, on the Hutcherson lands near the central part of the county. The well is the No. 2 Hutcherson which got the pay sand at 1,367 feet and at 10 feet in the pay has been swabbing and flowing at the rate of 450 bbls. daily.

The new well is about 4½ miles from the nearest production of any consequence, being that distance southeast of producing wells on the property of the Oil Investment Co. It is also just about the same distance southwest of production on the Luke F. Wilson ranch, where Burns & Maxson have some good wells.

The week's record of development also shows some other good wells in Archer County, which have not yet been listed as completions. Among these are two on the Portwood lease by Magnolia Petroleum Co., the Nos. 2 and 3. No. 2 Portwood of this company is reported swabbing at the rate of 300 bbls. daily from sand at 1,390-96 feet and No. 3 is estimtaed to be good for 150 bbls. from sand topped at 1,395 feet and drilled to a total depth of 1,400 feet.

No. 2 Young of the Pandem Oil Corp. which has already been reported as a producer, is now swabbing at the rate of about 200 bbls. daily from the sand at 1,438-42 feet. The Trio Oil Co. has a new producer on its Brom lease, its No. 5 swabbing at the rate of 100 bbls. daily from sand topped at 1,384 feet and drilled into a total of 16 feet.

South Vernon Pool

In the South Vernon Pool of Wilbarger County, No. 20 Castlebury of the Humble Oil & Refining Co. is not holding up to anything like its first performances. According to latest reports this well is now swabbing only 180 bbls. daily from a total depth of 1,876 feet. When first brought in this well was variously estimated at from 1,600 to as high as 2,000 bbls. daily.

However, the Humble has a good new producer on the W. T. Waggoner lands, its No. 1-I, which got the pay sand at 1,886 feet and when drilled in 3 feet, had an initial production on the swab of 345 bbls. daily.

In what is generally known as the Noble Pool, southeast of the South Vernon Pool, the Landreth Production Co. has three new producers, none of which is completed. This company's No. 6-D Waggoner is swabbing oil at the rate of 430 bbls. daily from sand at 1,889-99 feet. The same company's No. 2-F Waggoner is estimated to be making 225 bbls. a day from 11 feet of good pay sand at a total depth of 1,899 feet and No. 1-G Waggoner of the same concern is swabbing and flowing at the rate of 395 bbls. from 6 feet of rich pay sand topped at 1,853 feet.

In the western half of Wichita County, Perkins & Cullum of Wichita Falls have the promise of an unusually good well on their Beaver-Electra lease. It is No. 1 which got the pay sand at 1,595 feet and at 10 feet in began making oil. At last reports the well was swabbing 230 bbls.

The Texhoma Oil & Refining Co. has another good well on its Campbell lease in the shallow sand belt of northern Young County. It is No. 11 Campbell which has 10 feet of pay at a total depth of 884 feet. The well is swabbing at the rate of 245 bbls. daily. The Texhoma has just completed a number of good wells on this lease, also three dry holes. Nos. 6, 8 and 9 are failures. No. 3 is making 80 bbls., No. 4 is making 70 bbls., No. 5 is making 255 bbls. and No. 7 is making 65 bbls.

In Hutchinson County, No. 1 Whittenburg of Gibson and others is showing for more than an average producer for that district. The well is swabbing at the rate of 265 bbls. daily from the lime formation at 2,833-2,935 feet.

Cross Plains Townsite

A large number of average good completions were recorded in the Cross Plains Townsite Pool of Callahan County. The county accounted for a total of 11 completions, 10 of which were producers, only 1 being a failure. The largest completion was a 250-bbl. well on Block 47 by Lewis and others. Total new production from the county from the 10 completions was 940 bbls. flush.

There is very little change in the average daily production of the North Texas territory for the week ending November 26 from the average of the previous week. Totaly daily output this week is 166,955 bbls. average as against a total last week of 166,575 bbls., leaving a gain of 380 bbls.

From the standpoint of wells completed the week made a very poor showing in comparison with previous performances. There were a total of 73 completions during the week as compared with a total the week before of 85. There were 38 oil wells accounted for this week with a total new production amounting to 3,520 bbls. or an average per well of 90 bbls. This is a poor comparison with the previous week when 43 producers accounted for a total of 6,045 bbls. of new production.

Archer County fell off considerably in its average number of completions, reporting only 14 for the week. Young County came second with 12, while Wichita County had only 6 and Wilbarger County only 3.

Following is a table of completions for the week and a comparison with those of the previous week:

District—	Comp.	Prod.	Dry	Gas	Prod.
Wichita	6	4	2	0	245
Wilbarger	3	2	1	0	290
Archer	14	6	8	0	295
Young	12	5	7	0	610
Eastland	3	2	1	0	*30
Stephens	4	1	2	1	*30
Brown	5	2	1	2	*35
Reagan	3	3	0	0	1,015
Wildcats	23	12	7	3	*960
Total	73	35	29	6	3,520
Last week	85	43	37	5	6,045
Difference	12	5	8	1	2,525

*Stephens County reports 750,000 feet of gas; Brown County 4,500,000 feet of gas and the wildcat district 25,750,000 feet of gas.

PRODUCTION REPORT
Week Ending November 26, 1925

Burkburnett

Gulf Production Co.	485
Humble Oil & Ref. Co.	375
Magnolia Petroleum Co.	3,065
Panhandle Refining Co.	275
Prairie Oil & Gas Co.	30
Sinclair Oil & Gas Co.	50
Sun Oil Co.	80
The Texas Co.	405
Texhoma Oil Refining Co.	510
Miscellaneous	7,875
Total	13,150

Electra

Empire Gas & Fuel Co.	985
Gulf Production Co.	780
Humble Oil & Refining Co.	135
Magnolia Petroleum Co.	3,690
Panhandle Refining Co.	60
Prairie Oil & Gas Co.	125
The Texas Co.	3,540
Texhoma Oil & Refining Co.	1,645
Miscellaneous	5,980
Total	16,940

Iowa Park

Gulf Production Co.	40
Humble Oil & Refining Co.	300
Magnolia Petroleum Co.	625
Panhandle Refining Co.	40
The Texas Co.	425
Texhoma Oil & Refining Co.	50
Miscellaneous	4,025
Total	5,505

Wilbarger County

Gulf Production Co.	40
Humble Oil & Refining Co.	3,505
Prairie Oil & Gas Co.	50
Miscellaneous	10,510
Total	14,105

Archer County

Empire Gas & Fuel Co.	970
Gulf Production Co.	2,170
Humble Oil & Refining Co.	545
Magnolia Petroleum Co.	1,555
Panhandle Refining Co.	180
Prairie Oil & Gas Co.	3,295
Sun Oil Co.	315
The Texas Co.	3,065
Texhoma Oil & Refining Co.	2,105
Miscellaneous	19,635
Total	33,835

Stephens County

Empire Gas & Fuel Co.	40
Gulf Production Co.	1,280
Humble Oil & Refining Co.	770
Magnolia Petroleum Co.	435
Mid-Kansas Oil & Gas Co.	1,605
Prairie Oil & Gas Co.	910
Sinclair Oil & Gas Co.	75
Sun Oil Co.	200
The Texas Co.	1,275
Texas Pacific Coal & Oil Co.	1,300
Miscellaneous	6,430
Total	14,420

Ranger County

Gulf Production Co.	270
Humble Oil & Refining Co.	40
Magnolia Petroleum Co.	625
Mid-Kansas Oil & Gas Co.	180
Panhandle Refining Co.	140
Prairie Oil & Gas Co.	670
Sinclair Oil & Gas Co.	375
The Texas Co.	155
Texas Pacific Coal & Oil Co.	765
Miscellaneous	2,830
Total	6,050

Moran

Empire Gas & Fuel Co.	30
Humble Oil & Refining Co.	10
Prairie Oil & Gas Co.	15
The Texas Co.	375
Texhoma Refining Co.	80
Miscellaneous	1,945
Total	2,455

Young County

Gulf Production Co.	250
Humble Oil & Refining Co.	530
Magnolia Petroleum Co.	305
Mid-Kansas Oil & Gas Co.	10
Panhandle Refining Co.	170
Prairie Oil & Gas Co.	10
Sinclair Oil & Gas Co.	350
Sun Oil Co.	70
The Texas Co.	705
Texhoma Oil & Refining Co.	785
Miscellaneous	6,500
Total	9,715

Eastland-Comanche

Empire Gas & Fuel Co.	10
Humble Oil & Refining Co.	160
Magnolia Petroleum Co.	330
Mid-Kansas Gas & Oil Co.	165
Prairie Oil & Gas Co.	125
Sinclair Oil & Gas Co.	20
The Texas Co.	145
Texas Pacific Coal & Oil Co.	105
Miscellaneous	1,600
Total	3,210

Panhandle

Carson County	2,275
Hutchinson County	2,595
Wheeler County	30
Gray County	80
Potter County	30
Total	5,010

Miscellaneous Pools

Clay	385
Montague	740
Jack	20
Throckmorton	250
Baylor	305
Palo Pinto	545
Brown	2,375
Coleman	325
Callahan	4,635
Mitchell	2,950
Reagan	29,915
Scurry	65
Crockett	50
Total	42,560
Total this week	166,955
Total last week	166,575
Gain	380

Wichita County—Completions

Apple and others' No. 15-A Jennings, 120 bbls. at 1,806 feet; Magnolia Petroleum Co.'s No. 31 Maer, dry at 1,224 feet; No. 51 Rio Bravo, 2 bbls. a 2,106 feet; No. 8 Watkins, 5 bbls. at 1,206 feet; Petroleum Producers Co.'s No. 18-B Allen & Kemp, dry at 1,856 feet; Texhoma Oil & Refining Co.'s No. 3-M Burnett, 60 bbls. at 1,534 feet.

Wilbarger County

Atlantic Oil Producers' No. 2 Sigler-Waggoner, 90 bbls. at 2,463 feet; Pratt and others' No. 1 Waggoner, 200 bbls. at 2,368 feet; The Texas Co.'s No. 1-C Castlebury, dry at 2,601 feet.

Archer County

Burns and others' No. 1 Wisdom, dry at 1,430 feet; Burns and others' No. 1 Wilson, dry at 1,482 feet; Consolidated Oil Co.'s No. 1 Cowan, dry at 1,500 feet; Jones and others' No. 1 Brown, dry at 1,600 feet; Phillips Petroleum Co.'s No. 87 White, 25 bbls. at 1,622 feet; Sibley and others' No. 12 Wilmot, 15 bbls. at 1,390 feet; Shappell Oil Co.'s No. 34 Jackson, 80 bbls. at 1,810 feet; White Star Production Co.'s No. 1 White, dry at 1,620 feet; Woodburn Oil Corp.'s No. 24-A Wilson, 10 bbls. at 1,627 feet; Consolidated Oil Co.'s No. 1 Oldhom, dry at 1,370 feet; Kollatt and others' No. 1 Jackson, dry at 1,517 feet; Lincoln and others' No. 1 Rudd, dry at 1,504 feet; Perkins and others' No. 7 Anderson, 160 bbls. at 1,422 feet; Prairie Oil & Gas Co.'s No. 21 Goldsmith, 5 bbls. at 1,344 feet.

Young County

Burns and others' No. 1 Logan, dry at 1,205 feet; Murchison and others' No. 1 West, dry at 1,050 feet; Texas Unity Oil Co.'s No. 1 West, dry at 1,113 feet; Texhoma Oil & Refining Co.'s No. 3 Campbell, 80 bbls. at 903 feet; No. 4 Campbell, 70 bbls. at 911 feet; No. 5 Campbell, 255 bbls. at 899 feet; No. 6 Campbell, dry at 975 feet; No. 7 Campbell, 65 bbls. at 903 feet; No. 8 Campbell, dry at 950 feet; No. 9 Campbell, dry at 948 feet; Tidal Oil Co.'s No. 2 Campbell, 240 bbls. at 915 feet; Wellman and others' No. 1 Robinson, dry at 1,305 feet.

Stephens County

Clark and others' No. 1 Litton, 30 bbls. at 1,715 feet; Hagaman Refining Co.'s No. 1 Hagaman, 750,000 feet of gas at 3,560 feet; Phillips Petroleum Co.'s No. 1 Pace, dry at 4,110 feet; States Oil Corp.'s No. 1 Cooper, dry at 3,751 feet.

Eastland County

Woods and others' No. 1 Collins, dry at 1,485 feet; Dorothy Oil Co.'s No. 2 Kincaid, 20 bbls. at 1,708 feet; States Oil Corp.'s No. 1 Johnson, 20 bbls. of oil and 40 bbls. of water at 3,262 feet.

Brown County

Gillman and others' No. 7 Teston, 10 bbls. at 1,252 feet; Keough and others' No. 1 Angel, 4,000,000 feet of gas at 2,684 feet; Slick and others' No. 1 Windham, 500,000 feet of gas at 2,918 feet; Stone and others' No. 4 Gunn, 25 bbls. at 1,208 feet; Street and others' No. 1 Henry, dry at 1,347 feet.

Reagan County

Big Lake Oil Co.'s No. 50 University, 190 bbls. at 3,054 feet; Texon Oil & Land Co.'s No. 25, Group 1, University, 390 bbls. at 2,982 feet; No. 26 University, Group 1, 435 bbls. at 3,000 feet.

Wildcat Completions

Callahan County—Canyon Oil & Gas Co.'s No. 3 Barr, 10 bbls. at 1,429 feet; Herbert Oil Co.'s No. 1, Block 67, 40 bbls. at 1,442 feet; Jones and others' No. 1, Block 8, 100 bbls. at 1,454 feet; Lewis and others' No. 1, Block 59, 180 bbls. at 1,432 feet; Mook-Texas Oil Co.'s No. 3 McDonough, 60 bbls. at 1,437 feet; Schaffer Brothers' No. 1, Block 63, 50 bbls. at 1,446 feet; Wakefield and others' No. 1, Block 23, 25 bbls. of oil and 10 bbls. of water at 1,437 feet; Wakefield and others' No. 1, Block 87, 40 bbls. at 1,434 feet; Warren and others' No. 1, Block 47, 250 bbls. at 1,456 feet; Wilson and others' No. 1

Erwin, dry at 1,735 feet; Witherspoon Oil Co.'s No. 1, Block 48, 75 bbls. at 1,454 feet.

Hutchinson County — Crosbie and others' No. 1 Pitts, 5,000,000 feet of gas at 2,917 feet.

Montague County—Humphreys Corp.'s No. 3 Jones, 15 bbls. at 920 feet; Pure Oil Co.'s No. 1-B Jones, 25 bbls. at 1,804 feet; E. L. Smith Oil Co.'s No. 1 Maddox, 25,000,000 feet of gas at 910 feet; Texhoma Oil & Refining Co.'s No. 5 Howard, dry at 2,238 feet.

Throckmorton County—Associated Petroleum Co.'s No. 1 Putnam, dry at 1,260 feet.

Palo Pinto County—Upham Gas Co.'s No. 4 Edmondson, 750,000 feet of gas at 1,190 feet; Dalton and others' No. 1 Perkins, dry at 1,810 feet.

Mitchell County—Eastland Oil Co.'s No. 1 Elder, 90 bbls. at 3,065 feet; Henshaw and others' No. 1 Scott, dry at 3,111 feet.

Comanche County—Cox and others' No. 1 Sturkie, dry at 3,610 feet; Mon-Tex Oil Corp.'s No. 3 Goss, dry at 3,427 feet.

Wichita County

Bridwell and others' No. 1 Miller is drilling at 1,250 feet; Burt and others' No. 1 Hansard, drilling at 530 feet; Laning and others' No. 1 Riley, drilling at 150 feet; Magnolia Petroleum Co.'s No. 8 Holtzen, testing at 1,891 feet; No. 119 Reilly, drilling at 1,020 feet; No. 122 Reilly, drilling at 1,750 feet; No. 124 Reilly, drilling at 1,215 feet; Texhoma Oil & Refining Co.'s No. 1 Beach, drilling at 1,350 feet; Whibert Oil Co.'s No. 1 Davis, drilling at 985 feet; White and others' No. 1 McClure, fishing at 400 feet; Shappell Oil Co.'s No. 36 Jackson, drilling at 500 feet; Simms Oil Co.'s No. 3 Dutton, drilling at 1,800 feet; Biggs Oil Co.'s No. 11 Fisher, plugging back to 800 feet; Bullington and others' No. 11 Jennings, drilling at 700 feet; Compton Oil Corp.'s No. 1 Hirschi, drilling at 1,300 feet; Dale Oil Corp.'s No. 17 Jennings, drilling at 900 feet; Electra Gulf Oil Co.'s No. 7 Murray, drilling at 500 feet; Hammon and others' No. 5 Waggoner Brothers, drilling at 600 feet; Hammond and others' No. 1 Honaker, drilling at 600 feet; K.M.A. Oil Co.'s No. 23 Munger, drilling at 800 feet; Madison Oil & Gas Co.'s No. 12 Burnett, drilling at 500 feet; Magnolia Petroleum Co.'s No. 66 Allen, underreaming; No. 69 Honaker, drilling at 1,385 feet; No. 32 Maer, spudding; No. 33 Maer, spudding; No. 13-A Pratt, drilling at 645 feet; No. 52 Rio Bravo, drilling at 1,130 feet; O'Donohoe and others' No. 2 Pratt, fishing at 1,595 feet; Panhandle-McClure's No. 4 Jennings, mining at 97 feet; Perkins and others' No. 2 Beaver Electra, drilling at 1,000 feet; No. 1 Munger, drilling at 800 feet; Pois and others' No. 10 Waggoner, drilling at 1,000 feet; Shappell Oil Co.'s No. 4-B McCarty, drilling at 1,680 feet; Staley and others' No. 3 Marshall, drilling at 600 feet; Texhoma Oil & Refining Co.'s No. 3-L Burnett, drilling at 1,892 feet; No. 9 Waggoner Brothers, drilling at 1,730 feet; No. 10 Waggoner Brothers, drillnig at 1,750 feet.

Wilbarger County

Barkley and others' No. 2 Bond, in Wilbarger County, is drilling at 2,130 feet; No. 7-A Stephens, cementing casing at 2,279 feet; No. 8-A Stephens, drilling at 1,460 feet; No. 9-A Stephens, drilling at 250 feet; Bridwell and others' No. 1 Servatius, drilling at 2,310 feet; Continental Oil Co.'s No. 8 Zipperle, underreaming; Dyson and others' No. 1 Waggoner, Section 47, making oil at 2,438 feet; Humble Oil & Refining Co.'s No. 17 Castlebury, making oil at 2,038 feet; No. 22 Castlebury, running casing at 1,460 feet; No. 6 Stephens, drilling at 2,205 feet; No. 9 Stephens, running liner at 2,417 feet; No. 22 Stephens, cleaning out at 2,027 feet; No. 31 Stephens, in lime at 2,328 feet; No. 33-A Stephens, cementing casing at 2,269 feet; No. 34-A Stephens, standing full of oil at 2,103 feet; No. 38 Stephens, drilling at 796 feet; No. 39 Stephens, drilling at 878 feet; No. 1-H Waggoner, drilling at 2,350 feet; No. 2-H Waggoner, drilling at 1,835 feet; No. 3-H Waggoner, showing oil at 1,867 feet; No. 2-I Waggoner, drilling at 822 feet; Kolp and others' No. 10 Waggoner, fishing at 1,125 feet; No. 11 Waggoner, drilling at 1,235 feet; Landreth Production Co.'s No. 1-AA Waggoner, drilling at 1,130 feet; No. 1-BB Waggoner, drilling at 710 feet; No. 1-CC Waggoner, drilling at 200 feet; No. 4-D Waggoner, drilling at 1,960 feet; No. 5-D Waggoner, cementing casing at 1,894 feet; No. 7-D Waggoner, spudding; No. 8-D Waggoner, cementing casing at 1,867 feet; No. 1-E Waggoner, drilling at 2,175 feet; No. 6-F Waggoner, drilling at 1,470 feet; No. 1-H Waggoner, drilling at 1,156 feet; No. 1-P Waggoner, drilling at 1,620 feet; No. 1-U Waggoner, drilling at 1,365 feet; Lawson and others' No. 14 Waggoner, drilling at 1,370 feet; Levy and others' No. 1 Waggoner, Block 4, cleaning out at 2,423 feet; Jim McCamey's No. 1 Waggoner, drilling at 1,375 feet; McCamey and others' No. 8 Stephens, drilling deeper at 1,950 feet; No. 21 Stephens, showing oil at 1,960 feet; No. 24 Stephens, cleaning out and showing oil at 1,956 feet; No. 25 Stephens, cementing casing at 2,259 feet; No. 26 Stephens, drilling at 1,790 feet; No. 27 Stephens is standardizing at 2,277 feet; No. 28 Stephens, drilling at 1,650 feet; Magnolia Petroleum Co.'s No. 70 fee, drilling at 1,640 feet; No. 46 Piper, drilling at 1,900 feet; No. 1 Jiggs-Waggoner, undreaming; Milham Corp.'s No. 1-B Waggoner, fishing at 2,291 feet; No. 1-C Waggoner, is drilling at 600 feet; No. 1-H Waggoner, is showing oil at 2,311 feet; No. 2-H Waggoner is showing oil at 2,436 feet; Murchison and others' No. 1 Ditto, drilling at 940 feet; Petroleum Producers Co.'s No. 5-A Dill, is showing oil at 2,406 feet; No. 2-B Dill, drilling at 2,224 feet; Prairie Oil & Gas Co.'s No. 2-A Waggoner, drilling at 1,685 feet; No. 1-B Waggoner, is running casing at 2,265 feet; Roeser and others' No. 1-B Waggoner, setting casing at 1,325 feet; Roxana Petroleum Corp.'s No. 2-A Waggoner, drilling at 1,670 feet; No. 1-C Waggoner, drilling at 1,110 feet; Shamrock Oil Co.'s No. 1 Eslick-Waggoner, drilling at 1,050 feet; Sloan and others' No. 1 Waggoner, cleaning out at 1,605 feet; Staley and others' No. 8 Stephens, is fishing at 2,287 feet; No. 9 Stephens, drilling at 2,220 feet; No. 10 Stephens, drilling at 1,410 feet; No. 11 Stephens, drilling at 1,870 feet; Texhoma Oil & Refining Co.'s No. 1 Waggoner, drilling at 1,815 feet; Tidal Oil Co.'s No. 1 Waggoner, Section 26, drilling at 1,900 feet; Travis Oil Co.'s No. 2 Zipperle, cleaning out at 2,818 feet; Wood and others' No. 1 Dennis, is underreaming.

Archer County

Consolidated Oil Co.'s No. 1 Mangold, is drilling at 1,265 feet; Atlantic Oil Producing Co.'s No. 8-C Wilson, on sand at 1,600 feet; Barkley and others' No. 16 Wilson, drilling at 1,475 feet; Burns and others' No. 1 Brown, drilling at 1,345 feet; Empire Gas & Fuel Co.'s No. 8-E Wilson, drilling at 1,456 feet; No. 9-E Wilson, drilling at 1,450 feet; Grisham and others' No. 1 Jackson, drilling at 1,580 feet; Harris and others' No. 1 Mahler, drilling at 500 feet; Lawson and others' No. 5 Wilson, drilling at 460 feet; Magnolia Petroleum Co.'s No. 4 Rutty, drilling at 810 feet; No. 6 White, drilling at 2,035 feet; No. 10 Wilmot, drilling at 1,585 feet; Maxson and others' No. 4 Wilson, drilling at 600 feet; Muse and others' No. 2-B Wilson, cleaning out at 1,502 feet; Norwood and others' No. 1 Rutty, fishing at 1,380 feet; Pandem Oil Corp.'s No. 1 Parkey, drilling at 1,120 feet; Phillips Petroleum Co.'s No. 88 White, drilling at 1,585 feet; Ramming and others' No. 1 Browning, drilling at 1,690 feet; Riner and others' No. 1-D Wilson, drilling at 900 feet; Stump and others' No. 2 Wilson, drilling at 490 feet; Texhoma Oil & Refining Co.'s No. 9-A Taylor is fishing at 1,611 feet; The Texas Co.'s No. 1 Wilson, drilling at 280 feet; Wharton and others' No. 1 Cowan, drilling at 1,325 feet; Young and others' No. 1 Abney, drilling at 1,660 feet; Bridwell and others' No. 1 Turberville, drilling at 465 feet; Burns and others' No. 2 Tabor, drilling at 1,375 feet; Hammond and others' No. 1 Oldham, drilling at 500 feet; Independent Oil & Gas Co.'s No. 1 Wolf, showing oil at 1,316 feet; Logan and others' No. 1 Logan, standardizing at 995 feet; Major Petroleum Co.'s No. 2 Cowan, showing oil at 1,064 feet; Panhandle Refining Co.'s No. 6 Abercrombie, drilling at 1,395 feet; Perkins and others' No. 8 Anderson, drilling at 1,053 feet; P. & P. Production Co.'s No. 1 Wolf, fishing at 1,300 feet; Red Bank Oil Co.'s No. 1 DeKinder, underreaming; E. L. Smith Oil Co.'s No. 12-B Cowan, drilling at 700 feet; American Refining Co.'s No. 1 Portwood, drilling at 1,370 feet; No. 2 Portwood, drilling at 300 feet; Atlantic Oil Producing Co.'s No. 1 Falls County School Land, drilling at 420 feet; Bridwell and others' No. 6 Boren, drilling at 1,030 feet; British American Oil Co.'s No. 10 Rogers, drilling at 1,220 feet; Evangeline Petroleum Co.'s No. 1 Neal, drilling at 480 feet; Green and others' No. 1 Morrison, is drilling at 1,020 feet; Magnolia Petroleum Co.'s No. 2 Brom, drilling at 1,324 feet; No. 4 Portwood, drilling at 300 feet; No. 1 Portwood, drilling at 100 feet; No. 2-B Stampfli, cleaning out at 1,374 feet; Marland Oil Co.'s No. 3 Richardson, drilling at 2,915 feet; Murchison and others' No. 1 Deitrich, drilling at 625 feet; M. & V. Oil Co.'s No. 1 Lauster, drilling at 750 feet; Phillips Petroleum Co.'s No. 1 Falls County School Land, drilling at 960 feet; Shaw and others' No. 1 Hayter, drilling at 910 feet; Sun Co.'s No. 1 Schlegel, on sand at 1,167 feet; The Texas Co.'s No. 14 Hill, drilling in at 1,370 feet; No. 15 Hill, drilling in at 1,367 feet; No. 1 Wilborn, drilling at 560 feet; Trinity Townsite Co.'s No. 1 fee, on sand at 1,403 feet; Trio Production Co.'s No. 7 Brom, drilling at 1,000 feet; Verschoyle and others' No. 2 Young, drilling at 600 feet; Wilson and others' No. 1 Lauster, drilling at 560 feet.

Young County

Allen and others' No. 1 Dunagan, drilling at 450 feet; Atlantic Oil Producing Co.'s No. 1 Powell, on sand at 1,336 feet; Christie and others' No. 2-B Keathley, drilling at 720 feet; Coones and others' No. 2 Scarborough, drilling at 4,010 feet; Dyer and others' No. 1 Eppstein, drilling at 2,640 feet; F. H. E. Oil Co.'s No. 1 Leberman, drilling at 910 feet; Hamiton and others' No. 1 Brom, drilling at 620 feet; Hill and others' No. 1 McKlatchey, drilling at 1,177 feet; Hinson and others' No. 1 Morrison, drilling at 4,075 feet; Lesh and others' No. 1 Kemp, drilling at 1,240 feet; McLester Brothers' No. 1 Rogers, drilling at 3,920 feet; Minnich and others' No. 2 Stewart, drilling at 905 feet; Nash and others' No. 4 Williams, fishing at 1,760 feet; Reed and others' No. 1 Leberman, drilling at 1,080 feet; Roxana Petroleum Corp.'s No. 3 Burgess, drilling at 2,360 feet; Seigler and others' No. 1 White, drilling at 100 feet; Simms Oil Co.'s No. 1 Goldston, drilling at 1,175 feet; Stovall and others' No. 4 fee, is drilling at 2,805 feet; Sun Co.'s No. 1 Bloodworth, drilling at 560 feet; Texas Pacific Coal & Oil Co.'s No. 1 Kunkel, drilling at 470 feet; Whitehead and others' No. 2-B Belknap Coal Co., is running casing at 1,220 feet.

Stephens County

Gardner and others' No. 2 Cunningham, is drilling at 960 feet; Kansas Oil & Gas Co.'s No. 7 Hill, drilling at 1,420 feet; No. 8 Hill, drilling at 560 feet; Mid-Tex. Oil Co.'s No. 3 Cunningham, drilling at 375 feet; No. 1 Morrison, drilling at 300 feet; Rhodes and others' No. 1 Langford, drilling at 1,640 feet; Swensondale Oil Co.'s No. 8 Cobb, fishing at 3,323 feet; No. 1-B Echols, drilling at 1,200 feet; Adamson and others' No. 2 Bradford, reaming at 720 feet; Adkinson and others' No. 1 Keathley, drilling at 2,310 feet; Carter and others' No. 1 Smith, drilling at 1,745 feet; Corzelius Brothers' No. 1 Goforth, drilling at 330 feet; Cuervo Oil Synd.'s No. 2 Ming, in black lime at 3,275 feet; Curry Pool Oil Co.'s No. 2 Sikes, drilling at 640 feet; Edison and others' No. 1 Post, drilling at 1,075 feet; Hughes' No. 1 Long, fishing at 1,082 feet; No. 1 Thompson is drilling at 640 feet; Illinda Oil Co.'s No. 3-B Walker-Caldwell, is drilling at 3,175 feet; Landreth Production Co.'s No. 1 Guest, drilling at 2,116 feet; Mook Texas Oil Co.'s No. 3 Head, making gas at 1,865 feet; Roth and others' No. 1 Suddeth, drilling at 3,471 feet;

CALIFORNIA REFINERY AND NATURAL GASOLINE OPERATIONS IN OCTOBER

Compiled By J. W. Mashaw,
Division of Mineral Resources and Statistics, 506 Custom House, San Francisco, Cal.

Fifty-one refineries reported to the United States Bureau of Mines as operating during the month of October with an aggregate daily indicated capacity of 664,800 bbls. of crude oil. This is a gain of 5,850 bbls. in daily indicated capacity. These 51 plants were operating at 83.94 per cent of their capacity, running to stills a daily average of 558,065 bbls. of crude oil. This is an increase of 4,893 bbls. per day over September crude run to stills.

One hundred and forty-six natural gas gasoline plants, with a daily indicated capacity of 1,024,600,000 cubic feet, of a total of 149 plants operating in California in October report a recovery of 28,065,256 gallons of natural gas gasoline from 21,644,903,000 cubic feet of gas treated.

Utilization of natural gas gasoline amounted to 713,496 bbls., an increase over September of 49,441 bbls., of which 89,584 bbls. were unaccounted for in the reports received by the Bureau of Mines. This quantity of natural gas gasoline was presumably disposed of to blenders and refiners not reporting to the Bureau of Mines at present.

Stocks of natural gas gasoline at the end of October amounted to 74,849 bbls., of which 25,407 bbls. were reported by natural gas gasoline plant operators and 49,442 bbls. by refinery operators. This is a decrease of 45,276 bbls. under September stocks.

Gasoline

The production of gasoline during the month of October amounted to 159,481,499 gallons, a daily average of 5,144,564 gallons. This is an increase of 21,345,201 gallons, or 15.45 per cent over September output. Of this production 324,528 gallons were reported as finished gasoline produced by natural gas gasoline plant operators. Compared to the production in October, 1924, an increase of 61,436,046 gallons, or 62.66 per cent is noted. Of the gasoline produced 348,677 gallons were from using either a cracking of synthetic process and 159,132,822 gallons from other processes. Stocks of gasoline show an increase of 14,196,514 gallons during October and at the end of the month amounted to 395,541,484 gallons. This stock figure includes 24,588 gallons of finished gasoline reported by natural gas gasoline plant operators.

Engine Distillate

Production of engine distillate decreased 797,358 gallons to 2,828,848 gallons in October and stocks decreased 2,216,927 gallons and at the end of the month amounted to 22,173,205 gallons.

Kerosene

Kerosene production amounted to 23,983,518 gallons, a decrease of 323,960 gallons under September output. Stocks increased 5,774,621 gallons and at the end of the month amounted to 71,937,586 gallons.

Heavy Crude, 20 Degrees and Below, Including All Grades of Fuel Oil

Production of gas oil, fuel oil and residuum amounted to 510,766,808 gallons, an increase of 16,730,169 gallons over September output. Stocks of heavy crude, includ-

(Continued on Page 132)

anlon and others' No. 1 Ming, drilling 2,400 feet; States Oil Corp.'s No. 2 oper, drilling at 3,685 feet; No. 1 an, drilling at 3,120 feet; Strawn Peoleum Co.'s No. 25 Stuart, drilling at 0 feet; Swensondale Oil Co.'s No. 1-B venson, spudding; Texas Pacific Coal Oil Co.'s No. 2 Adams, drilling at 560 feet; No. 57 Binney, showing oil 1,818 feet; No. 59 Binney, spudding; o. 3 Hand, setting casing at 3,510 feet; o. 4 Hand, setting casing at 2,365 feet; o. 8 Veale, cleaning out at 4,050 feet; ie Texas Co.'s No. 11 Curry, drilling 3,285 feet; No. 2 Grimes, is straight aming at 2,975 feet; Walker-Caldwell oduction Co.'s No. 1 Keathley, drilling at 2,650 feet.

MID-CONTINENT O. & G. ASSN. ELECTS OFFICERS

The Mid-Continent Oil & Gas Association elected officers for the coming ear at the annual meeting held on Monay, November 30. The officers who erved the past year were re-elected. hey are as follows: W. N. Davis, artlesville, president; W. B. Pyron, Gulf oduction Co., Houston, vice president r Texas; Burt H. Collins, Echo Oil o., Tulsa, vice president for Oklahoma; lyde M. Bennett, Louisiana Oil & Reining Corp., Shreveport, vice president r Louisiana, and Harry H. Smith, ulsa, secretary-treasurer.

President Davis made a report on the forts made to retain the discovery deletion provisions in the Federal Income ax Law and the association will coninue its fight in the interests of the il industry along this line until the end.

The safety work of the Petroleum Safey Council will be submitted to the Amerian Petroleum Institute at its January eeting.

PROFITS AND AVERAGE BARREL OF PETROLEUM

(Continued from Page 21)

lly different today from what they were dozen years ago.

Regardless of what has transpired, conomically, within the oil industry itelf, the automobile industry has never een hampered in its development by a ack of motor fuel.

And the owners of all machines, probbly close to 20,000,000 today, whose ower unit is an internal combustion ngine, have never lacked a plentiful upply of good gasoline—and at prices hat, nearly always, have been below its ntrinsic industrial value.

There are evidences aplenty that either the owners of motor vehicles nor, trange to say, their manufacturers, fully ppreciate that the increased price of rude oil and the increasing percentage f gasoline recovered do not necessarily ndicate a proportionately larger margin f profit to either the producer or the efiner.

In 1925 we will produce more than hree times as many barrels of crude oil s we produced 15 years ago—and the efiners will get, from each barrel, more han three times as much gasoline as hey got 15 years ago.

But there is no doubt that the profits, per "average" barrel have not grown with the increased barrelage output of he producers—or the increased percentage recoveries of the refiners.

Narrowing margins of profit to the producers of raw materials and to the manufacturers of finished products are the inescapable economic sequences of the growth and development of every industry. In any industry, only the fortunate speculator has ever been able to "beat" this fundamental principle.

And in the oil industry today we find a clearly defined tendency to solve its larger problems by "mass" operations—a condition that calls for powerful rounded-out units operating on narrow margins per "average" barrel—and from which the millions of consumers of finished products are always the greatest beneficiaries.

Late News From the Fields

OKLAHOMA

In the Hambro Pool of Jefferson County, the Gypsy Oil Co.'s No. 8 Arpelar, NW cor. SE NE, Section 33-6s-5w, touched sand at 1,444-66 feet and started off at 70 bbls. the first hour. Gypsy's No. 5 on the same lease, which started at 30 bbls. an hour Saturday night, flowed 153 bbls. the first eight hours and then went dead.

The Marland Oil Co.'s No. 2 Thomas, SE cor. SW SW, Section 15-25-2w, discovery well of the Wilcox sand in the Thomas Field, went dead Sunday but was revived by cleaning out and swabbing Monday. Saturday it flowed 480 bbls. and Monday it swabbed 560 bbls.

In the Garber Field, the Sinclair Oil and Gas Co.'s No. 27 North Walker, SW SE NE, Section 13-22-4w, found the big pay at 4,313-15 feet, good for 2,700 bbls. for the 24 hours ended Tuesday morning. The same company's No. 20 Hartley, a location north of the big well, made 8,000,000 feet of gas at 3,940-50 feet and was drilling at 3,975 feet Tuesday morning. This is more gas at the depth than any of the other wells in that part of the field showed.

In the Tonkawa Field, the Marland Oil Co. and Mid-Continent Petroleum Corp.'s No. 9 School land 21, NW NE NE, Section 33-25-1w, the farthest west well in the field, made 431 bbls. Monday from sand topped at 4,247 feet and drilled 32 feet in. This puts a wet blanket on hopes of a big northwest extension of the field.

Northwest of Cushing in Payne County, the Marland Oil Co. and O'Kansas Oil Co.'s No. 2 Blue, SW cor. NW SE, Section 7-18-5, made 100 bbls. in sand at 2,867-80 feet. The 8-inch was being set at 2,873 feet and the well was to be shot. It was estimated at 300 bbls. No. 1 on this lease was a light well in a shallow sand.

GULF COAST

HOUSTON, Tex., Dec. 1.—The Rio Bravo Oil Co.'s No 1-P Settegast, on the west side of the Pierce Junction Dome, came in flowing 3,500 bbls, 7 per cent water, at 3,875 feet. Strainer was set in 42 feet of sand.

It is the second completion by that company on that side of the pool. No. 1-P is located 400 feet north of No. 1 Settegast, the first well. A derrick is up for No. 2-P.

NORTH CENTRAL TEXAS

FORT WORTH, Tex., Dec. 1.—More than a half dozen new wells are in the process of being completed in the South Vernon Field of Wilbarger County, several of them producing from lower pay level, the sandy lime formation between 2,300 and 2,400 feet.

No. 25 Stephens of the Humble Oil & Refining Co. is making 210 bbls. daily from a pay at 2,362 to 2,428 feet and the same company's No. 26 Stephens flowed and swabbed oil at the rate of 307 bbls. in 12 hours from the pay at 2,340 feet to 2,409 feet. No. 37 on the same lease is now swabbing and flowing at the rate of 900 bbls. daily, after coming in early in the week for an estimated production of 1,000 bbls. The Humble's No. 1-I Waggoner is also a new producer for this field, flowing and swabbing 273 bbls. on the first 24-hour test at 1,886 to 1,894 feet.

In the same general territory the Landreth Production Co. has two new producers all on the Waggoner ranch. This company's No. 3-F Waggoner is swabbing and flowing 300 bbls. at 1,913 to 1,927 feet. The No. 1-G Waggoner is estimated to be good for 350 bbls. in sand at 1,853 to 1,869 feet.

In Archer County the No. 3 Wilson of Lomax and others is making 280 bbls. from sand at 1,519 to 1,531 feet and is not yet completed.

In the old Electra Field of Wichita County the No. 15 Pierce of the Empire Gas & Fuel Co. is a new producer. When put on the pump it produced 85 bbls. in the first 19 hours from sand at 1,493 to 1,498 feet.

The Republic Production Co. has drilled its No. 1 Baker wildcat well in Upton County several feet deeper to a total depth of 2,242 feet and the drill at last reports was in a lime formation, with the well showing no appreciable increase in production. The well made one flow on Sunday of about 45 bbls.

Refiners' Failure To Limit Production Brought Low Prices

By Joseph E. Pogue

The time has come when the petroleum industry should give serious consideration to means whereby its collective refinery operations can be conducted in a reasonable manner. It is worse than folly to go into the new year with the way wide open to a repetition of the mistakes that have been an annual incident in the past half decade. There may be some excuse for producing too much crude oil, in view of the competitive drilling that seems almost inevitable in our oil fields, but refinery throughput is subject to intelligent control and there are no extenuating circumstances when refiners overproduce.

It seems incredible, even in retrospect, that a year of such potentialities as 1925, with a 20 per cent increase in the demand for gasoline, should have been marred by a refinery expansion that exceeded all bounds. Such profits as accrued this year—and it was a not unprofitable period to producers—were the result of the kindness of nature in failing to provide the one more pool required to bring collapse to the crude oil market; the gain is not to be attributed to foresight in planning and conservatism in operation in the refining department of the industry.

What do the records tell? In terms of a calculated normal for each month, refinery operations in the United States have run as follows: January, 110.9 per cent; February, 110.4 per cent; March, 111.8 per cent; April, 111.4 per cent; May, 111.7 per cent; June, 118.0 per cent; July, 118.9 per cent; August, 115.9 per cent; September, 108.8 per cent.

It is evident from the above simple tabulation that refinery markets were oversupplied throughout the early months of the year and seriously congested during the summer. In September, furthermore, there was a radical reduction in operations, which has been carried to further lengths since that month. It is to this curtailment that we owe the improvement in market tone that has recently come into evidence, and upon the continuation of which the hope of the immediate future hangs.

The year 1925 thus forms a perfect example of how the petroleum industry can get into trouble and how it can get out of it. Uncontrolled refinery operations led to overproduction, which made low prices inevitable; restricted operations later began to correct the situation and we are now at the turning point. Will the industry pursue the right course until sound market recovery shall have been attained? And with recovery, will a profitable status be maintained?

To help move forward along constructive lines, two things are needed. First, a general appreciation and understanding that refinery operations must be held within the bounds of what the markets will absorb. Second, the means for knowing promptly and definitely when refinery operations are getting out of bounds. The first, let us hope, experience has already taught us. If not, surely another year or two of depressed prices will supply the deficiency. The second is nonexistent. As the matter now stands, the industry, whatever its intentions, has no adequate means of controlling refinery operations. Government statistics are too delayed to serve as a guide. The trouble has been caused when these figures become available. What is required is a weekly statistical record of the collective volume of crude oil charged to stills, gathered by telegraph and promptly disseminated.

Shall the industry run the risk of a depression in 1926 for the lack of this simple index?

Big Wells in Mexico But Largest, Showing Water, Is Pinched In

TAMPICO, Mex., Nov. 28.—Huasteca Petroleum Co.'s No. 55 Tierra Blanca, in the South Fields, is completed at a subsea level depth of 1,922 feet, rated good for a potential head production of 25,000 bbls. This make the third well completed by this company in this hacienda in the week. The Nos. 53 and 56 have already been reported.

Transcontinental Petroleum Co.'s No. 4 Piedras, in the Panuco Field, is finished at 1,865 feet, rated good for a potential head production of 20,000 bbls. Against this, however, it might be remarked that International Petroleum Co.'s big well in this Piedras, finished at 1,700 feet, and doing over 24,000 bbls. the past few days showed salt water three days ago and was pinched to something a little over 6,000 bbls. So, just what Transcontinental's No. 4 Piedras will do when actual exploitation tests are made remains to be seen. East Coast Oil Co.'s No. 217 Halcon, a well within reasonable juxtaposition to the International well, drilled into 25,000 bbls. of salt water, with a 1 per cent showing of oil at 2,015 feet.

Crude Advance Has Little Effect On Refined Oil Market

OIL CITY, Pa., Nov. 27.—The big feature of the week in the Pennsylvania refining district was the increase in the quoted prices of Pennsylvania and other eastern grades of crude oil. Despite this increase few upward changes in refined prices were made although the market has been unsettled and the refiners are trying to get more for their products.

There was not much doing in gasoline during the week and actual consumption of this product was low on account of bad weather.

Kerosene continued to be strong throughout the week. Naphtha and fuel oil also registered strength. The demand for cylinder stocks, wax and neutrals was not so good as during the preceding week.

Shallow Sand Well in Northern California Made a 25-Bbl. Show

LOS ANGELES, Cal., Nov. 30.—Forty miles north of San Francisco, near Petaluma, Sonoma County, Harry Witt has a well in sand at 1,025-50 feet which showed 25 bbls. in intermittent flows. The well is No. 2 Ducker.

The Oil and Gas Journal is informed that the outlook for commercial production in this well is not favorable but that additional developments may show better results.

Geologists here are somewhat pessimistic regarding the outcome of No. 2 Ducker.

GOVERNMENT DRILLING

The Hungarian Government, in its agreement with the Anglo-Persian Oil Co., reserved the right to drill on certain land on its own account for oil and gas. The Hungarian Government has now exercised this right and is prospecting near Hajdu Szoboszlo. In the tests both gas and oil have been met with, but it is not stated in what quantity.

Finishing 12" x 14" Bit Steel Blank at 1000-Ton Press

DIAMOND —"H"— Bit and Jar Steel

The steel that "goes thru"—a bottom poured open hearth steel, forged with ample cross sectional reduction—and a 20 per cent cold crop.

This is a forged steel—not rolled—and is to exact analysis and specifications.

You can buy no better steel.

HEPPENSTALL Forge & Knife Co.
Pittsburgh - - - - - - - - - - - - - - Penna.

Fort Worth - - Texas Office
1918 W. T. Waggoner Building

Oklahoma Field Operations

By C. D. Lockwood

Big decline in production of Garber Field features Oklahoma news for week. Output of deep sand area in that field dropped from peak of 71,800 bbls. to 45,400 bbls. in little more than week. Tonkawa suffers considerable drop in production, due mainly to fire on highly productive lease.

A stupendous decline in production rom the deep sand in the Garber Field, mounting to a sickening drop from a peak f 71,800 bbls. on November 21 to 45,400 bls on Monday of this week, was the utstanding feature of the Oklahoma elds during the past week. And this rop could not be stayed by the bringing n of several new wells of high caliber. Only one of the deep sand wells in the Garber Field remained free of water Monday morning, and that was the Sinlair Oil & Gas Co.'s wonder gusher, No. 9 Hartley, which was still holding up to 4,100 bbls., although wells to the south nd west and southwest were all making ater in varying amounts.

The Roxana Petroleum Corp.'s No. -W Schroeder, SE NW SW, Section 18-2-3w, was added to the list of producers uring the week, making 4,000 bbls. from he upper pay at 4,264-75 feet. It was ot drilled in to the lower pay for fear f ruining other wells around it, but began making water Saturday from the pper pay.

The Marland Oil Co. and Mid-Continent Petroleum Co.'s No. 58 School land, NW NE SE, Section 13-22-4w, was another new producer. It topped the lime at 4,281 feet, had a show of gas at 4,290 feet, a show of oil at 4,305 feet and pay lime at 4,320-28 feet, where it made 300 bbls. on November 26 and 480 bbls. the next day.

The Rhoda Ford area claimed a little of the calcium light when the Skelly Oil Co. drilled in its No. 3 Ford, SE cor. NE NE, Section 7-15-6. It topped the Hunton lime at 4,048-59 feet and got the oil at 4,050-61 feet, good for 907 bbls. the first 24 hours, and 826 bbls. on November 28. Gravity of the oil is 44 degrees.

Hambro Pool Producer

Another good well was added to the Hambro Pool of Jefferson County Saturday night when the Gypsy Oil Co.'s No. 5 Arpelar, NE SE NE, Section 36-6s-5w, started flowing about 30 to 35 bbls. an hour from sand topped at 1,485 feet and drilled to 1,542 feet in sand. The same company's No. 6 on this lease, C SE NE, same section, was due in early in the week, having cemented casing at 1,458 feet. No. 4-C, NE cor. SE, was also cemented at 1,365 feet, and No. 8-W, NW cor. SE, same section, was standing cemented at 1,444 feet. The Humble Oil & Refining Co.'s No. 5 Hambro, CNL NE SE, Section 33-6s-5w, was pumping about 50 bbls. It made about 200 bbls. initial a couple of weeks ago but efforts to shut off water shut off most of the oil also. Same company's No. 6, NE cor. SE, same section, was cemented at 1,424 feet. Humble's No. 3 James, CWL SW NW, Section 34-6s-5w, was drilling at 1,625 feet with a show of oil and some water in sand topped at 1,608 feet; No. 4 James, a location north, was drilling at 1,680 feet; No. 5 James, SW cor. NW, was running 5-inch with a show of oil at 1,473 feet. The Prairie Oil & Gas Co.'s No. 4, NW cor. SW, Section 34, was making 115 bbls. on the pump, and No. 5, a location east, was cemented at 1,572 feet. Staley & Chenault were running 8-inch, total depth 1,256 feet, in their No. 1, NE SW NW, Section 34. Clark and others' No. 1, SW cor. SE NW, same section, was shut down at 1,500 feet. The Carter Oil Co.'s No. 1, SW cor. NE NE, Section 33-6s-5w, was drilling at 1,468 feet.

Operations in Oklahoma increased a little during the week ended November 18, when the total number was 1,366, a gain of 29 operations. On that date there were 62 locations, 167 rigs, 765 wells drilling, 274 wells shut down and 98 completions.

Tonkawa Hard Hit

The Tonkawa Field was hard hit during the past week. The Roxana Petroleum Corp.'s No. 24-W Blubaugh, NW cor. SE SW, Section 2-24-1w, which was being deepened to the Siliccous lime, struck water at 4,438-48 feet, about 200 feet below the top of the Wilcox sand, putting 3,100 feet of water in the hole. It will probably be plugged and abandoned. This well is one of the two farthest south deep sand wells in the field, being 272 feet lower on the structure than the highest well. It found the water about 100 feet above the Siliceous lime, according to the geologists' estimates. Two Roxana wells have been drilled to the Siliceous lime in the Tonkawa Field. These are No. 8-W C. C. Endicott and No. 14-W Gaume. These wells had small amounts of oil in the basal Wilcox, but were not thought to have been productive in the Siliceous lime.

The other blow to the Tonkawa Field was a fire on the Comar Oil Co.'s Beverlin lease, richest Wilcox sand property in the State, which caused a suspension of swabbing and other activities sufficient to knock the field's daily average output down from 44,855 bbls. for the week ending November 21 to 39,270 bbls. for the 7-day period ending November 28. For four days of the week, the deep sand average was down around 23,000 bbls. but was climbing back toward normalcy the latter part of last week.

North of the Thomas Pool, the Gypsy Oil Co.'s No. 1 Chambers, SE cor. NW, Section 9-25-2w, had water at total depth of 4,497 feet, and was trying to shut it off. Pumping equipment was on the way and the well was to be plugged back to 4,305 feet and put on the pump. The hole was standing full of oil from chat topped at 4,292 feet.

Production of Important Pools

Following are the daily average figures on production for the principal fields of the State during the week ended November 24 (minus sign indicates decrease from previous week; all figures not preceded by minus sign show increase):

Field—	Wells	Bbls.	Increase or Decrease Bbls	Wells
Gilcrease-Papoose	206	14,052	587	—1
Wewoka	143	8,336	—163	1
Cromwell	407	21,848	—698	1
South Weleetka	47	1,965	—199	Same
Yeager	11	915	2	Same
Gypsy (35-8-8)	12	245	18	Same
Wildcats in 9-8	5	305	—5	Same
Otoe or Watchorn	21	2,809	—1,152	Same
North Braman	24	1,741	—87	Same
South Braman	17	5,958	—623	Same
Thomas	15	16,751	—342	1
Hubbard	21	2,374	135	Same
Garber, deep	35	68,539	12,472	6
Davenport	75	20,795	1,969	9
Stroud	71	3,479	138	Same
Burbank	1,805	48,304	—142	Same

Davenport Production by Company

Daily average production of companies in the Davenport Field during the week ended November 24 was as follows:

Company	Lease	Sec.	Wells	Bbls.
Magnolia Pet. Co., A. Sporleder		3	2	381
Magnolia Pet. Co., A. E. Sporleder		34	1	176
Magnolia Pet. Co., M. F. Sporleder		34	4	585
Magnolia Pet. Co., A. Sukovaty		2	7	3,108
Magnolia Pet. Co., F. Sukovaty		3	5	831
Magnolia Pet. Co., P. Sukovaty		3	5	1,497
Magnolia Pet. Co., Ingram		34	5	413
Pure Oil Co., Jefferson		35	3	735
Gypsy Oil Co., Caves		11	1	200
Gypsy Oil Co., Caves		35	1	266
Prairie O. & G. Co., Stout		3	12	2,490
Selby-SW. Pet., Bagwell		3	9	1,575
Amerada Pet. Co. Belless		3	1	40
Carter Oil Co., Tuttle		2	2	483
Skelly Oil Co., Hopkins		2	3	1,449
The Texas Co., Tipton		2	5	2,822
Galvez, Hopkins		2	1	871
Twin State, Bigwater		2	8	2,907
Sinclair, Ingram		34	1	56
Total			75	20,795
Total last week			66	18,826
Increase			9	1,969

Burbank Production

The daily average production of the Burbank Field, by companies, for the week ended November 25 follows:

Company—	Wells	Bbls.
Carter Oil Co.	280	7,840
Comar Oil Co.	7	86
Cosden (Mid-Cont. Pet.)	106	1,460
Devonian Oil Co.	16	133
Gypsy Oil Co.	193	2,783
Kewanee Oil & Gas Co.	25	260
Laurel Oil & Gas Co.	16	184
Lewis Oil Co.	14	1,289
Lorraine Petroleum Corp.	15	81
Midland Oil Co. (Empire)	37	753
Mid-Kansas Oil & Gas Co.	41	1,238
Peters & Oliphant	3	590
Phillips Petroleum Co.	172	8,973
Delmar Oil Co. (Empire)	16	998
Phillips Pet. Co. and Skelly Oil Co.	179	2,742
Prairie Oil & Gas Co.	127	4,453
Producers & Refiners Corp.	29	296
Roxana Petroleum Corp.	54	576
Simons, Moore and others	29	207
Sinclair Oil & Gas Co.	144	1,672
Skelly Oil Co.	25	860
Tidal-Osage Oil Co.	42	485
The Texas Co.	16	572
Twin State Oil Co.	24	449
Total, Osage County	1,610	38,980
Kay County Extension		
George S. Bole	3	227
Carter Oil Co.	11	1,014
Comar Oil Co.	19	1,299
Cosden (Mid-Cont. Pet.)	16	895
Gypsy Oil Co.	18	184
Laurel Oil & Gas Co.	5	167
Mid-Kansas Oil & Gas Co.	10	829
Phillips Petroleum Co.	32	2,034
Prairie Oil & Gas Co.	4	121
Pure Oil Co.	5	246
Roxana Petroleum Corp.	3	249
Dye, Tomlinson and others	8	451
Skelly Oil Co. and Phillips Petroleum Co.	20	296
Sinclair Oil & Gas Co.	5	201
The Texas Co.	16	264
Twin State Oil Co.	15	837
Total, extension	195	9,324
Total, Burbank Field	1,805	48,304
Total last week	1,805	48,446
Difference	None	142

The daily average pipe line runs from the field during the week were as follows:

Gulf Pipe Line Co.	4,424
Cosden Pipe Line Co.	4,813
Osage Pipe Line Co.	1,436
Oklahoma Pipe Line Co. (Carter)	15,299
Prairie Pipe Line Co.	10,638
Kay County Gas Co. (Marland)	2,898
Sinclair Pipe Line Co.	1,873
Moore Refining Co.	419
Empire Pipe Line Co.	990
Mid-Kansas Oil & Gas Co.	1,249
Ozark Pipe Line Co. (Roxana)	3,568
Texas Pipe Line Co.	697
Total	48,304

Burbank storage by companies on November 24 was as follows:

	Bbls.
Phillips Petroleum Co.	3,788,372
Skelly Oil Co.	78,906
Sinclair Oil & Gas Co.	2,000
Mid-Kansas Oil & Gas Co.	819,281
Cosden Pipe Line Co.	395,400
George L. Bole	96,550
Gypsy Oil Co.	2,013,298
Carter Oil Co.	361,175
Dye, Tomlinson et al.	62,486
Total	7,607,468

Tonkawa Production

Daily average production of the Tonkawa deep sand, by companies, for the week ended November 24, was as follows:

Company, lease—	Wells	Bbls.
Amerada, Woods	8	980
Blackwell, McDaniels	3	306
Blackwell, Ruzek	1	0
Comar, Beverlin	18	5 459
Comar, Blubaugh	9	993
Comar, Blubaugh "C"	1	0
Comar, Gaume	9	776
Comar, E. Endicott	8	1,044
Comar, L. Endicott	5	940
Comar, Pettit	6	24
Friedman, Siler	1	0
Gypsy, Shawver	17	2,760
McMan, Suiter	1	23
Mid-Continent-Marland, School Land	3	1,506
Pennok, Endicott	7	191
Phillips Petroleum, McDaniels	1	14
T. B. Slick, Endicott	7	947
The Texas Co., Davis	10	3,474
Wentz, Mahoney	5	5,903
Wentz, McKee	9	2,177
Total	129	27,517
Total last week	129	30,386
Difference	None	3,869

Total deep sand to date, 26,204,375 bbls.

Results In Lincoln County

In the Davenport Field of Lincoln County, the Skelly Oil Co.'s No. 2, SW cor. NE, Section 2-14-5, found first oil at 3,330 feet and passed out of sand at 3,381 feet. Bottom of hole was 3,389 feet and the initial production was 1,025 bbls. The Southwestern Petroleum Co. and Selby Oil & Gas Co.'s No. 9, NW cor. SE SE, Section 3-14-5, topped sand at 3,316 feet, had first oil at 3,340 feet and total depth in sand was 3,385 feet where it made 150 bbls. natural, but was being shot with 80 quarts.

The Pure Oil Co.'s No. 4, SE cor. SW SW, Section 35-15-5, made 305 bbls., naturally. Sand was topped at 3,324 feet, first oil came at 3,345 feet, and total depth was 3,381 feet in sand.

The Galvez Oil Co.'s No. 1, NW cor. SE, Section 2-14-5, is a good well. At latest report it was making 872 bbls. and in the first 8 days after completion had produced 8,444 bbls. of 47.2 gravity crude. Sand was topped at 3,280 feet, first oil at 3,325 feet and total depth in sand is 3,359 feet. Initial production was 1,140 bbls. This well is diagonally across the quarter section from Flynn, Morgan & Young's original duster in this part of the country. A rig is up for the Galvez Oil Co.'s No. 3 Baker, NE cor. NW SE, Section 2.

The Carter Oil Co.'s No. 2, SW cor. NW. NE, same section, was completed in sand at 3,276-3,384 feet, for 268 bbls. initial. First oil came at 3,326 feet and bottom of the hole is 3,386 feet. Gravity is 47.1 degrees. The Amerada Petroleum Corp. has a rig building for No. 1 Hopkins, NW cor. NE SE, same section.

The Devonian Oil Co. has started a semi-wildcat that may extend the Davenport Field to the east. It is No. 1 Soward, NW cor. Section 1-14-5. The rig is being built.

Some other completions in the Davenport Field follow: The Twin State Oil Co.'s No. 7, NE cor. NW NW, Section 2-14-5, was good for 250 bbls. natural and 320 bbls. after a shot of 27 quarts in sand at 3,302-82 feet, with first oil at 3,332 feet and total depth 3,387 feet; same company's No. 8, NW cor. NE NW, same section, good for 432 bbls. natural and 482 bbls. after 20-quart shot in sand at 3,284-3,375 feet, first oil at 3,320 feet, and total depth 3,377 feet.

New work in the field included the following wells: The Magnolia Petroleum Co.'s No. 12, Ely, SE cor. SW NW, Section 2, rigging up; No. 13 Ely, NE cor. NW SW, Section 2, drilling at 100 feet; No. 14 Ely, SW cor. SE NW, same section, rigging up; No. 15 Ely, NW cor. NE SW, same section, drilling at 100 feet; the Skelly Oil Co.'s No. 3, NE cor. SW NE, Section 2, drilling at 430 feet; No. 5 Perkins, SW cor. SE NE, same section, building rig; The Texas Co.'s No. 8, SE cor. SW, same section, drilling at 427 feet; No. 9, SW cor. SE SW, drilling at 910 feet.

The Amerada Petroleum Corp.'s No. 4, NW cor. SW, Section 3-14-5, was drilling at 60 feet. The Prairie Oil & Gas Co.'s No. 13, NW cor. SW NW, same section, was drilling at 740 feet.

West of the Stroud Field in Lincoln County, the H. F. Wilcox Oil & Gas Co.'s No. 2, NE cor. SW SW, Section 15-14-6, was completed in sand at 2,-

981-87 feet after plugging back from 4,315 feet. It was squibbed with 3, 5 and 7 quarts and made 15 bbls.

North of the Davenport Field in Lincoln County, the Amerada Petroleum Corp. and O'Kansas Oil & Gas Co. were building a rig for their No. 1 School Land, NW cor. SE, Section 36-15-5.

Northwest of the Davenport Field in Lincoln County, the Supreme Petroleum Co.'s No. 1, NE cor. NW, Section 36-15-4, was shut down at 4,700 feet with a hole full of water.

Busy In Deep Rock Pool

In Payne County, the Garr Oil Co. was deepening its old well No. 1 Harlow, SE cor. SW NW, Section 9-19-5, at 3,424 feet. Old total depth was 3,370 feet.

McGill was building a rig for his No. 1 Culberson, SE cor. NW, Section 27-18-6.

Northwest of Stillwater, the Wentz Oil Corp. had a rig on the ground for No. 1 Gunstaff, NW cor. NE SW, Section 23-20-4.

In the Deep Rock Pool, A. J. Hull was moving in tools for No. 1 Berry, NE cor. SE SE, Section 22-18-3. The Shaffer Oil & Refining Co. abandoned the location for its No. 2, SE cor. NE SE, Section 23-18-3, but was drilling at 774 feet in No. 1, CEL NE SE, same section. The Deep Rock Oil & Refining Co. was drilling at 427 feet in its No. 4, SW cor. SE, same section. Same company had 22,000,000 feet of gas in its No. 2, SW cor. NE, same section, in sand from 4,242-56 feet, and was drilling below 4,273 feet. The Shaffer Oil & Refining Co.'s No. 3, SW cor. SE NE, same section, encountered water at 4,329 feet and plugged back to 4,324 feet where it was estimated good for 7 to 10 bbls. The Amerada Petroleum Corp. suspended work on its rig for No. 3 Haley, NE cor. SE SE, Section 23, while the Deep Rock Oil & Refining Co. was building a rig for No. 1 Fulton, NE cor. SE NE, Section 27-18-3.

In southern Payne County, the Home Gas Co.'s No. 1, NE cor. SE NW, Section 6-17-4, was drilling at 2,570 feet with a hole full of water. The Skelly Oil Co. shut in No. 1, C NE NE SE, same section, for an estimated 17,000,000 feet of gas at total depth of 3,743 feet.

In the southern part of the same township, on the Lincoln County side of the line, the Mid-Kansas Oil & Gas Co. had a rig up for No. 1 Griswald, NE cor. SW, Section 33-17-4.

In northern Payne County, the Josey Oil Co. completed its No. 6, SE cor. SW SE, Section 35-19-5, good for 180 bbls. natural from sand at 3,373-3,412½ feet. Gravity of the oil is 41.1 degrees.

The Home Gas Co.'s No. 4, CWL SW NW, Section 1-18-5, was completed in sand at 3,094-3,105 feet for 5,000,000 feet of gas.

Blaisner & Hartley spudded their No. 1-A, NW cor. Section 2-18-6. McGill and others were also rigging up No. 1 Culberson, SE cor. NW, Section 27-18-6.

In the southern part of Payne County, the Skelly Oil Co.'s No. 1, C NE NE SE, Section 6-17-4, was making 17,000,000 feet of gas and estimated 17 bbls. of oil from sand at 3,683-3,743 feet, not completed. The Magnolia Petroleum Co. had timbers on the ground for No. 3 Payne, SE cor. NE, Section 6-17-4.

In southeastern Pawnee County, the Continental Oil Co. abandoned its No. 15, SW cor. SE NW, Section 25-20-9, at 2,648 feet.

In southern Pawnee County, the Magnolia Petroleum Co. spudded its No. 1, SE cor. NW SW,, Section 9-20-6.

Adamson and others were building a rig for No. 6 Sigan, CWL NW SW, Section 32-21-8, and the Tidal Oil Co. was rigging up to deepen its old well, No. 2 Sewell, CNL SW NE, Section 35-21-8.

An old well which was rigging up to deepen was Murray and others' No. 5 Wolf, CEL NE NE, Section 2-20-7. W. A. McCabe completed No. 1, NE cor. SW SW, Section 4-20-7, for 20 bbls. after shots of 12 and 20 quarts in the Skinner sand at 2,580-2,605 feet. Block & Carnahan completed their No. 2, SW cor. SE NW, Section 11-20-7, good for 15 bbls. after shots of 15 and 30 quarts in sand at 2,787-91 feet. Gravity of the oil tests 36.4 degrees.

Adamson and Sun Ray Oil Co. had a 180-bbl. producer of 38.5 gravity crude in their No. 2, NE cor. NW, Section 5-20-8. Sand was found at 2,903-40 feet, and total depth 4 feet deeper. Roy Sears spudded his No. 1, CWL NE NE, Section 7-20-8.

Half a mile northeast of the Watchorn Field in western Pawnee County, the Magnolia Petroleum Co. abandoned its No. 1, C SW SW SW, Section 27-23-3, at 3,889 feet. The same company was rigging up No. 1, C NE NE NE, Section 36-23-4, corrected location. Southwest of the field, the Champlin Refining Co. was drilling below 1,000 feet in its No. 1, CNL NE NE SW, Section 5-22-3.

In eastern Pawnee County, the Tidal Oil Co. was rigging up to deepen its No. 6 Sewell, NE cor. SW NE, Section 35-21-8.

The Privett Drilling Co. was building a rig for its No. 1 Garner, NE cor. SE, Section 3-20-6. The Riverside Oil Co. was drilling below 1,650 feet in its No. 1, SE cor. NW, Section 36-20-6.

Osage County

Across the Arkansas River in the Osage County part of the Cleveland area, the Indian Territory Illuminating Oil Co.'s No. 8, C NE SW NW, Section 1-21-8, was plugged back 10 feet to sand at 2,375-85 feet where, after a 10-quart shot it was estimated good for 5 bbls. The Skelly Oil Co. and Moore spudded No. 6, C NE NW NE, Section 2-21-8.

Clint Moore and associates completed No. 4, CEL SW SE, Section 3-21-9, for 500,000 feet of gas in the Bartlesville sand at 1,880-1,910 feet, after finding sand at 2,275-92 feet dry. The hole was plugged back from 2,310 feet to 1,915 feet.

The Mid-Kansas Oil & Gas Co. spudded its No. 4, C NE SW NW, Section 11-21-10. Knupp and others' No. 4, CSL SW SE NE, Section 18-21-10, was good for 12 bbls. after 80-quart shot in sand at 1,943-81 feet, with first oil at 1,969 feet. The Sand Springs Home was rigging up its No. 89, CWL NW, Section 19-21-10. The Roxana Petroleum Corp. and others abandoned their No. 1, SE cor. NE NE, Section 33-21-10, as dry at 2,518 feet.

On the Pawnee County side of the river, Breene & Holmes were drilling their No. 1, C SW SW NW, Section 28-20-10, at 1,800 feet.

In Osage County, Titus & Morris were drilling at 200 feet in their No. 1, C SW SW NW, Section 8-21-11. The Devonian Oil Co. abandoned its No. 8, C NE NE NE, Section 25-21-11, at 2,173 feet.

Elliott & Smith's No. 20, C NW NW NW, Section 30-21-12, was shut down at 2,087 feet with a hole full of oil from sand at 2,034-48 feet, estimated good for 50 bbls.

In the northwestern corner of Osage County, the Lewis Oil Co. was drilling its No. 1, CEL NE NE, Section 18-29-6, at 1,065 feet.

The Winona Oil Co. completed No. 4, CEL SE NE SE, Section 20-29-9, with a 120-quart shot in sand at 1,579-1,610 feet, making it good for 40 bbls. of 36.6 gravity oil.

The Indian Territory Illuminating Oil Co. was rigging up a machine for its No. 3, CSL SW NW NW, Section 14-29-10.

The Owen-Osage Oil Co.'s No. 354, CEL SE SW SE, Section 25-28-10, was drilling at 630 feet.

The Winona Oil Co. completed its No. 11, NW cor. SE SW, Section 22-29-11, in sand at 1,004-24 feet, making 10 bbls. after a 70-quart shot.

The Owen-Osage Oil Co. was rigging up a machine for its No. 356, C NE NW NE, Section 33-28-11.

In the Burbank Field, the Phillips Petroleum Co. spudded its No. 13, CNL NW NE NE, Section 29-27-6.

The Owen-Osage Oil Co. spudded in No. 355, CWL SW NE, Section 8-27-11.

C. B. Peters' No. 6, CEL NW NW Section 32-24-9, topped the Bartlesville sand at 2,090 feet, and had 2,000,000 feet of gas at 2,121 feet. Bottom of the sand was 2,188 feet. The Burgess sand at 2,198-2,237 feet carried 1,000,000 feet of gas and this was being mudded off to drill deeper.

The Winona Oil Co.'s No. 18, CWL SW NW SE, Section 28-24-10, was dry and abandoned at 580 feet.

The Indian Territory Illuminating Oil Co.'s No. 337, CEL NE NE NE, Section 34-25-11, was rigging machine. The Devonian Oil Co.'s No. 11, C NE NW same section, was drilling at 550 feet.

The Barnsdall Oil Co.'s No. 4, C SW SW SW, Section 1-24-11, was drilling at 325 feet. Roxana and others' No. 2, CWL SW SE, same section, was rigging up machine.

The Meridian Petroleum Co.'s No. 7 C S half NW NW, Section 18-22-9, had 500,000 feet of gas in the Burgess sand at 2,332-38 feet and was drilling ahead at 2,352 feet.

The Superior Oil Co. abandoned its No. 1-A, CWL NW SW, Section 16-23-12, as dry at 1,569 feet.

Kay County

Northeast of the Comar Oil Co.'s old lonesome No. 1 Williams, which is still producing a little oil, the Mississippi Valley Oil Co. had a rig on the ground for No. 1 Ebersole, C NW NE, Section 3-27-2.

In the Hubbard Pool, the Marland Oil Co. was building a rig and moving in rotary tools for its No. 1-A Stober, C SE SE SW, Section 1-26-2w.

On the east side of the old Deer Creek Field in Grant County, the Kay Oil & Gas Co. has rebuilt the rig for its No. 3 Martin, C NW SW SW, Section 23-27-3w, an old well drilled deeper.

In the Thomas Pool, the Marland Oil Co. was building a rig for its No. 3-A School Land 24, C NE SE SE, Section 16-25-2w.

On the northeastern edge of the Garber Field's shallow producing area, Charles Knox and others were building a rig for a deep test, their No. 7 Richter, SW cor. SE, Section 7-22-3w.

Southwest of Covington, southern Garfield County, the Sinclair Oil & Gas Co. staked a location for a wildcat, its No. 1 Hobbs, C SW SW NE, Section 2-20-5w.

Southeast of Perry, Noble County, the Belt Petroleum Co.'s No. 1, C SE SE SE, Section 29-21-1, was abandoned at 1,695 feet, and the rig was skidded 25 feet west for No. 1-A.

Okmulgee County

The Paige Brothers' No. 3, C SW NE, Section 14-15-12, was abandoned as dry at 2,984 feet. It had topped sand at 2,874 feet and gone out of it at 2,931 feet.

The Devonian Oil Co. and Independent Oil & Gas Co.'s No. 5, C SE SW, Section 7-15-13, was good for 300 bbls. of 44 gravity crude from sand at 2,667-73 feet following a 5-quart squib. Same companies' No. 10, SE cor. SW SE, same section, was good for 480 bbls. after a 5-quart shot in sand at 2,653-60 feet. No. 12, CWL NW SE SE, same section, was spudded.

J. G. Lyons' No. 1, CNL NW NE NE, Section 18-15-13, was making 12,000,000 feet of gas in sand at 2,070-80 feet.

The Phillips Petroleum Co. spudded its No. 1, C NW NW NW, Section 22-13-8, Creek County.

In Okmulgee County, southwestern part, Detrich and others abandoned their No. 2, C NW NW NE, Section 7-13-11, as a failure at 3,288 feet.

The Eagle Picher Oil Co. shut in its No. 2, C NE SE SE, Section 32-13-12, for 16,000,000 feet of gas in sand at 2,295-2,303 feet.

J. K. Gardner was rigging up No. 4 Fisher, C NE NE SW, Section 4-13-14. Saint and associates were spudding No. 3, C SE NE NW, Section 21-13-14. W. R. Summerville's No. 8, CEL NW

(Continued on Page 125)

Kansas Oil Field News

By C. D. Lockwood

An eastward extension of the Rainbow Bend Field one location nearer the river was effected by the Waite Phillips Co., Independent Oil & Gas Co. and Marland Oil Co.'s No. 1 Bryan, SW cor. SE, Section 21-33-3, Cowley County, Kansas. It topped the sand at 3,247 feet, had gas and oil at 3,259 feet, and at total depth of 3,282 feet in sand swabbed 75 bbls. in 24 hours. The same companies' completed two other wells in the Rainbow Bend Field. No. 16 Ella Nelson, SE cor. NW NW, Section 21-33-3, topped sand at 3,202 feet and at total depth of 3,234 feet was good for 240 bbls. in the first 10 hours. No. 3 Ike Nelson, NE cor. SE NW, same section, topped sand at 3,216 feet, had gas at 3,220 feet, oil at 3,228 feet and at total depth of 3,244 feet in sand made 145 bbls. in the first 10 hours. Both of these wells came in Sunday.

The Derby Oil Co.'s No. 1 Hunt, NE cor. NW NW NE, Section 21-33-3, which topped sand at 3,217 feet last week, and drilled out of sand at 3,238 feet, and 2 feet deeper in shale, swabbed the oil down from 1,800 feet to the bottom and it filled up very slowly, coming back only 400 feet. This is on the northeastern edge of the Rainbow Bend Field, across the river from the main field.

Kansas operations showed a slight increase during the week ended November 18 in comparison with the previous week. On the latter date there were 52 locations, 94 rigs up, 205 wells drilling, 133 wells shut down and 42 completions, a total of 526 operations. This represents an increase of 17.

In southern Lyon County, on the north end of the Golden Lane, the Phillips Petroleum Co.'s No. 1 CEL NE NE SE, Section 32-21-12, was drilling at 937 feet. The same company's No. 2, CSL SW SW NW, Section 33-21-12, was drilling below 680 feet, and a rig was up for its No. 2 Lock, SW cor. NW SW, same section. No. 3 Lock, CEL NE NW SW, same section, was rigging up and No. 1, C SW SW NE, same section, was drilling at 525 feet.

Chase County

North of the new Chase County extension of the Little Golden Lane, Dingee, Pryor & Lockhart had a rig on the ground for No. 1 Atyeo, C NW NW SE, Section 25-21-9.

In the next township, south and west, the White Eagle Oil & Refining Co. and Connell spudded their No. 1 Brandley, C NW NW SW, Section 29-22-8.

The Selby Oil & Gas Co.'s No. 4, C SW NE SE, Section 35-22-9, was cleaning out at 2,561 feet, making 12 bbls. of oil. No. 5, on the same lease, a location east, had 700 feet of oil in the hole from sand at 2,537-46 feet and broken sand at 2,546-51 feet, total depth being 2,579 feet. The Mid-Kansas Oil & Gas Co. had a rig up for No. 2 Hartley, C SW SW SW, Section 36-22-9.

Greenwood County

Across the line south, in Greenwood County, the Skelly Oil Co.'s No. 1, C NW NW NW, Section 1-23-9, Teeter Pool, was completed for 150 bbls. of 42 gravity oil from sand at 2,409-33 feet. Greenland and others had rigs on the ground for No. 5-A Shambaugh, C NW SE NE, and for No. 7-B Shambaugh, C SW NE NE, Section 2-23-9.

In the Fromm Pool, Golden Lane, the Empire Gas & Fuel Co. had a rig up for No. 3, CEL NE NW SW, Section 14-22-11, and completed its No. 3, C NW SE SE, Section 15-22-11, for 150 bbls. of 41 gravity oil after a shot of 80 quarts in sand at 1,878-1,914 feet. T. K. Simmons and others were drilling their No. 2, CSL SW SE SW, Section 19-22-11, at 475 feet.

In the northwest extension of the Seeley Pool, the Phillips Petroleum Co.'s No. 2, C SE NW NE, Section 30-22-11, started off at 400 bbls. naturally of 42

(Continued on Page 124)

Shafts are heated and shrunk on gudgeons before riveting.

Over 20,000 In Use!

FOR many years we have tried to make Moore Steel Wheels as nearly everlasting as it is humanly possible to make them. And we must have succeeded pretty well—the great demand shows that. For instance, in the Smackover field, perhaps the greatest oil strike ever witnessed in the history of petroleum, there are as many Moore Wheels in use as of all other makes of steel wheels combined.

Just one little point—the use of unbreakable rolled steel sections is one of the reasons why failures have been practically eliminated.

With due apologies to Mr. Packard, we don't believe there is an automobile manufacturer living or dead who can face "the man who owns one" with half the confidence we have in the good opinion of the owners of those 20,000 odd wheels.

LEE C. MOORE & CO., Inc.
PITTSBURGH, PENNA.
Established 1907

CASPER, WYO. Midwest Building
DALLAS, TEXAS Magnolia Building
TULSA, OKLA. Atlas Life Building
SHREVEPORT, LA. 414 Merchants Building
PARKERSBURG, W.VA. Union Trust Building

MOORE STEEL WHEELS

North Louisiana-Arkansas

By M. L. Vaughn

Substantial gain in production due to increased output of Smackover heavy, although Louisiana fields show loss. Development in Clark and Lafayette Counties in Arkansas and Winn Parish in Louisiana attracting interest. Third sand at Smackover important, with prospects of boom there.

SHREVEPORT, La., Nov. 30.—Louisiana production last week showed a further decline, though Cotton Valley has picked up and showed an increased daily production over last week of 580 bbls. The Palmer Corp.'s deep test in the Cotton Valley Field continues to hold the interest of North Louisiana. Arkansas shows a gain of 7,045 bbls. per day over the preceding week, the increase being mainly in Smackover heavy, with slight increase in both Smackover light and Stephens.

The oil show in South Arkansas and the Urania district, Winn Parish, Louisiana, is especially encouraging and has been of much local interest. The average daily production for North Louisiana for the week just ending is 44,853 bbls., and for Arkansas 205,385 bbls., making a total for both States of 250,238 bbls., with an increase of 6,673 bbls. The distribution is as follows:

North Louisiana

Bellevue	2,485
Caddo, light	8,620
Caddo, heavy	2,205
Cotton Valley	9,045
DeSoto and Red River	3,975
Elm Grove	528
Haynesville	11,895
Homer	6,100
	44,853

Arkansas

Smackover, heavy	172,655
Smackover, light	21,600
El Dorado	8,035
Nevada	1,395
Stephens	1,700
	205,385
Total both fields	250,238
Increase	6,673

Two Centers of Interest

There has been more than usual interest manifested by oil men during the week just closed over oil development in Clark and Lafayette Counties, Arkansas, and in Winn Parish, Louisiana. The Arkansas Fuel Co.'s No. 1 Allen, in Section 18-19-24, was reported standing 600 feet in fluid with 16 per cent salt water. The show was developed around 2,780 feet. The nearest production is in the Cotton Valley Field, 19 miles south. This test was extremely encouraging as it is the first showing made in this territory, though there has been more wildcat drilling in this county than in any other county in the State.

The reports that an oil saturated core was taken at 830 feet from Heath & Lovett's No. 1 Arnold, in Section 19-9-20, Clark County, located 4 miles northeast of Gurdon, has created considerable interest, as it is many miles from production in the Arkansas fields and is strictly wildcat territory.

Scouts left Shreveport during the week to inspect the Gould-Harper Syndicate's No. 2 Harper, in Section 23-10-1e, Winn Parish, Louisiana. This well seems to indicate that Winn Parish is nearer the main formation of the pool, and that LaSalle is just on the edge. The well is located in the SW cor. NE SW of the section. It is a quarter of a mile west of the LaSalle and Winn Parish line, and 2 miles west of the center of production in the Urania district in 19-19-2e, LaSalle Parish. The oil is of the same grade as that of other wells in the Urania district, but comes from a coarser sand than wells drilled to the east. However, at that the sand is fine enough to require a 60 mesh screen and back pressure valve to prevent the hole sanding up. Reports differ as to what the well is making, but the estimate is about 100 bbls.

In the early part of the week it was flowing oil, then went to salt water, back to fresh water, and is again flowing oil. The Gould-Harper well's elevation is 67 feet and topped the pay at 1,512 feet. Cleve Love's No. 1 Doty, located in the SE NE of 36-10-1e, shows a difference of 5 feet more in surface elevation and topped the pay at 3 feet less. It will be tested within the next few days.

Important Tests

A number of new locations have been made in the El Dorado district, most of which are in Union County. A permit was issued for a wildcat test in Johnson County, and several tests are due in southern Arkansas. One of the most important tests scheduled is that of the Phillips Petroleum Co.'s No. 2 Thompson, in Section 7-16-15, in which casing has been set in the third sand level.

In the East Field, Wingfield and others continue to work on their No. 1 Tuft well in Section 18-17-14. The well showed salt water in the third test of the Blossom sand. It was plugged back and bailed and reports now indicate there is more showing of gas, and it is the intention of the crew to run the swab in the hole.

Casing is on the ground to be set on No. 1 Dumas, wildcat test, in the Lisbon area, Section 9-17-16. A rich oil sand has been encountered at a depth of 2,050 feet, and casing will be set at that depth. This well is of special interest as it is claimed to have shown gas along with the oil bearing formation.

The Palmer Corp.'s No. 1 Davis, in Section 23-21-10, Webster Parish, is down 4,387 feet, the test showing about 6,000,000 feet of gas with spray of oil. The oil is now estimated at around 8 bbls. Four tests have been made and each test has showed an increase in oil. They are now in a sandy lime formation, and have gone back in the hole to drill deeper.

The Gulf Refining Co. is down 5,360 feet in its No. C-18 Williams, in Section 31-13-11, DeSoto Parish, where it is drilling in lime.

New Pipe Line Route

It was announced from El Dorado that Austin Taylor, president of the Crusader Pipe Line Co. of Louisiana, and vice president of the Arkansas division, will make his headquarters at Shreveport in a short time. The Crusader is constructing a pipe line from El Dorado to Natchez, Miss., and as much of this work is in Louisiana, Shreveport will be a convenient and central location for the office. The Smackover-Vidalia pipe line will extend from the Smackover oil field across the northeastern corner of Louisiana to Vidalia on the Mississippi River, a distance of 147 miles. It passes east of El Dorado, through Union and Ouachita Parishes in Louisiana, and southeast near Rayville to its destination. Between 400 and 500 men will be employed in the construction. Work was begun November 19, laying the line through the Lafourche swamp, 100 men being employed on this part of the line. It is reported that 250 cars of pipe are on sidings and unloading for use in the construction work.

Winnfield has granted a franchise for the piping of natural gas to that city from a connection with the Southern Gas Co. lines 20 miles west of the town.

The Thrift Oil & Gas Co. was fined $500 by Judge F. D. Pierce of the Union Parish District Court for overpulling gas wells in the Monroe fields. The case created a great deal of interest, in that it was the first to be tried for such violation. The trial and verdict is regarded as a precedent on the basis of which strict penalties will be exacted for future violations. The company will appeal the case.

Drilling operations in the Arkansas oil fields still continue at a minimum. The weekly report of permits issued by Commissioner of Conservation and Inspector Perry F. Chappell shows only 13 permits including one for abandonment and one for deepening, with more than half of the new holes being drilled in Union County.

In the list of new drilling is one test in Johnson County in wildcat territory. This test is being drilled by the Empire Oil & Gas Co. and is No. 1 on the Russell lease. It is located 910 feet south and 660 feet west of the northeast corner of the northeast quarter of the northeast quarter of the northeast quarter of 14-10-24.

The permit for abandonment was the Arkansas Fuel Corp.'s No. B-4 Ferguson, in Union County, 200 feet south and 350 feet east of the northwest quarter of the southwest quarter of 6-16-15. The permit for deepening was for the Natural Gas & Fuel Corp.'s No. 4 F. Murphy, Union County, 150 feet east, 624 feet north of the southwest corner of the northeast quarter of the southwest quarter of 9-16-15.

The Palmer Corp. has gone into a sandy lime and has passed the 4,400-foot mark, with an increase in volume and pressure of the gas noted, now making 6,000,000 to 7,000,000 feet of gas daily. This test is its No. 1 Davis, Section 23-21-10. Since testing at 2,311 feet the bit has been in crystalized lime until the present sandy formation was entered, which may or may not prove a lens and the bit go back into anhydrites again.

Gulf Refining Co., in its deep test in DeSoto Parish, has passed the mile and gone almost an hundred feet further, total depth being 5,325 feet, with the bottom in hard lime.

Expect Smackover Boom

This week finds members of the El Dorado oil fraternity giving their attention to discussing and predicting what the development of the third sand in Smackover district holds out for this territory. The general opinion seems to be that a miniature boom is only a matter of days. Field followers are going through what might be termed the waiting period or perhaps the lull before the storm. Last week tests were numerous and the number of completions jumped but this week there are few wells testing and not many in the final stages.

However, there are numerous wells on the sand waiting for cement time to expire. The number of wells in the finishing stage does not speak for the extent of operations, as new wells started during the last 7 days kept pace with the number for the preceding week. There were 15 permits in the November 14 list, including new tests and workover jobs, started in the district. Reports indicate there are between 100 and 11[illegible] rigs in operation in south Arkansas at present. All of the workover jobs are old tests being deepened to the third sand and it is understood most of the new tests will also be drilled to the 2,600-foot level.

The third sand producing area has been proven in six additional sections during the past 10 days. The 600-bbl. well, No. B-4 Howell, of the Natural Gas & Fuel Corp. in Section 17-16-15, last week was closely followed by No. 1 Thompson of the Phillips Petroleum Co. in Section 7-16-15, which came in making 500 bbls. and has increased production until now it is making about 1,500 bbls. of oil and 1,000 bbls. of water. The Thurman Drilling Co. got a 500-bbl. producer in Section 6-16-15, and wells are showing up as pumpers in three other sections.

Union County—Completions

Operations during the past week resulted in the completion of 11 wells, all of which were producers, except the Amerada Petroleum Corp.'s No. 5 Gilley, Section 15-16-15, which was abandoned at 2,730 feet.

Gulf Refining Co.'s No. 3 T. D. Murphy is blowing with gas and making 2,000 bbls. of oil, 97 per cent salt water, at 2,607 feet.

Hickman and others completed No. [illegible] Graves, Section 3-16-15, pumping 25[illegible] bbls. at 2,559 feet.

Humble Oil Co.'s No. 7 Flenniken, Section 3-16-15, is pumping 165 bbls. at 2,381 feet.

Lion Oil & Refining Co. completed No. 3 Hardy-Murphy, Section 9-16-15, pumping 300 bbls. at 2,395 feet.

Magnolia Petroleum Co.'s No. 4 Stout Lumber Co., Section 1-16-17, is pumping 350 bbls. at 2,513 feet.

Phillips Petroleum Co. completed No. 11 Giller, Section 10-16-15, pumping 2[illegible] bbls. at 2,002 feet.

Roxana Petroleum Corp.'s No. C-4 Flenniken, Section 8-16-15, is pumping 200 bbls. at 2,404 feet.

Standard Oil Co.'s No. 28 M. W. Hardy, Section 9-16-15, is flowing 30[illegible] bbls. at 2,390 feet.

Tidal Osage Oil Co. completed No. [illegible] Vestal, Section 17-16-15, pumping 11[illegible] bbls. at 2,663 feet.

Unity Petroleum Co. completed No. 14 Roper, Section 3-16-15, making 40,000,000 feet of dry gas at 2,631 feet.

Ouachita County

Completions in Ouachita County for the week ending November 25 numbered 3, all of which were producers, adding only 640 bbls. to the daily production.

Gulf Refining Co. completed No. A-10 Goodwin, Section 5-16-15, pumping 15[illegible] bbls. at 2,560 feet.

Ohio Oil Co.'s No. B-6 Lewis, Section 27-15-16, is pumping 50 bbls. at 2,080 feet.

Standard Oil Co.'s No. 9 R. Bennett lease, is pumping 440 bbls. at 2,41[illegible] feet.

Bossier Parish

Louisiana Oil & Refining Corp. completed No. D-27 Fee, Section 15-19-11, pumping 200 bbls., 50 per cent salt water, at 362 feet.

Caddo Parish

Austin Oil Co. completed No. 25 Hoss, Section 24-22-15, pumping 20 bbls. at 1,058 feet, and Roy and others completed No. 3 Hutchinson, Section 4-15-12, making 15,000,000 feet of gas at 1,944 feet.

Claiborne Parish

Borden and others abandoned in salt water No. 1 A. W. Hays, Section 26-19-6, at 2,505 feet.

Morehouse Parish

The Texas Co. completed No. 1 C. L. Griffin, Section 11-20-4e, making 23,500,000 feet of gas at 2,156 feet.

Cotton Valley District

Humble Oil & Refining Co. completed No. 1 Burrow, Section 21-21-10, pumping 45 bbls. at 2,574 feet.

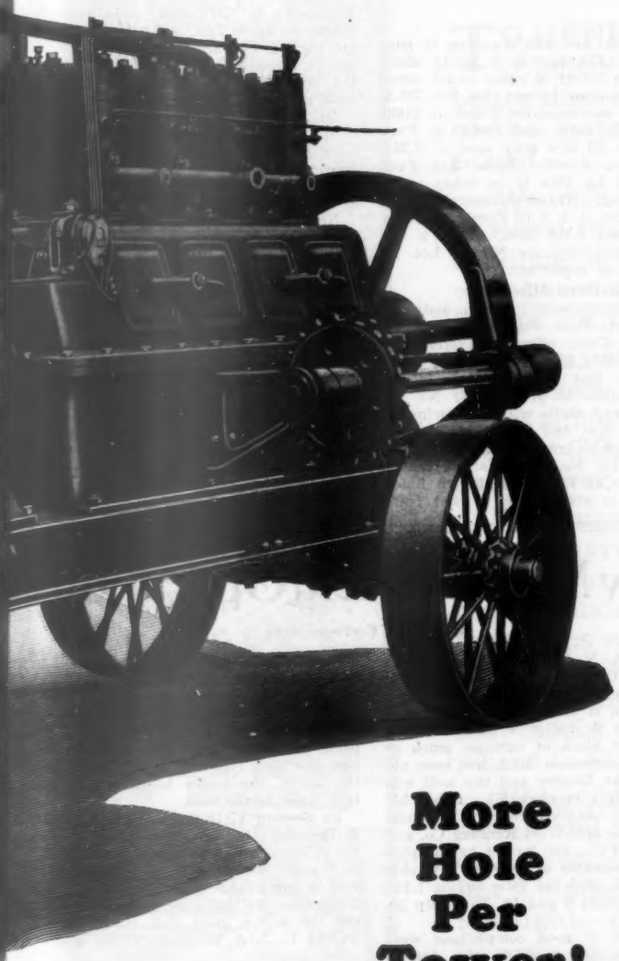
Ohio Oil Co. completed No. 2 Sandlin, Section 27-21-10, pumping 50 bbls., 2[illegible] per cent salt water, at 2,549 feet.

Winn Parish

Monroe-Gould Drilling Co. completed No. 2 Harper, Section 23-10-1e, flowing

(Continued on Page 115)

Drilling Motion



Unlike any other drilling engine

The Clark is the only drilling engine which will follow the drop of the tools.

Drilling motion, power and constant operation are the all-important requisites for drilling; all three are combined in the Clark Engine.

Handling pipe, fishing, and all other conditions encountered in drilling to 5,000 feet are perfectly met by the Clark Engine.

A large number of Clarks are demonstrating this daily in actual operation.

More Hole Per Tower!

Service

SMITH-BOOTH-USHER COMPANY
228 S. Central Ave., Los Angeles
50 Fremont St., San Francisco

S ENGINES

News of Mexican Fields

By George Blardone

A total of 59,000 bbls. of initial production from eight new oil wells was the record of a week in the Mexican fields. Mexican Petroleum Co. completed an 8,000-bbl. well following the two big gushers of the Huasteca Petroleum Co. Seven dry holes were finished.

TAMPICO, Mex., Nov. 28.—Apart from the two big wells of the Huasteca Petroleum Co. finished in Tierra Blanca in the south fields, there were some 13 other wells completed during the week in Mexican pools. Of this number 6 are in the production column with additional new production of 14,200 bbls., which, when added to the potential flush of 45,000 barrels of the two Tierra Blanca wells above referred to, gives a total flush production of 59,200 bbls. for the week, which is rather like a bygone day.

The best well of the week in the northern fields is Mexican Petroleum Co.'s No. 46 Chapacao, a shallow San Felipe well rated good for 8,000 bbls. The finishing depth was 1,569 feet. In the Cacalilao sector, International Petroleum Co. scored a 2,000-bbl. well in its No. 242, Lot 5, the tools getting the pay at 1,785 feet. Transcontinental Petroleum Co., in Lot 4, finished its No. 228 for 1,500 bbls. at 1,710 feet.

In the Panuco Pool, Empire Gas & Fuel Co. finished both of its tests in Lot 11 West Maguabes, with production. The No. 6-A is rated good for 1,000 bbls. at 1,282 feet and No. 7 is figured for 1,600 bbls. at 1,330 feet. These two wells are exceptionally shallow. They were finished in the San Felipe formation, and have some license to last quite a while, although salt water has been in evidence not far from them. East Coast Oil Co.'s No. 44 Laguna de la Milpa is a 100-bbl. well at 1,955 feet.

In the southern fields, Mexican Eagle Oil Co., Ltd., has finished its No. 16 Potrero del Llano at a subsea level of 1,728 feet. It may make a small stripper.

The Failures

In the Panuco Field, La Corona Petroleum Co. has quit its deep test, No. 82 San Manuel, at 3,630 feet. It can be classed as a dry hole, upper water strata having been cased off as the drill descended. Oven in Corcovado, Corona's No. 15, Lot 6, drilled into salt water at 2,462 feet. Mexican Sinclair Petroleum Corp.'s No. 6-A, Lot 6 Camolote, is a dry hole at 2,252 feet. Williamson and others' No. 1-K Tampuche, finished a duster at 2,500 feet. In Cacalilao, International Petroleum Co. scored two dry holes in its Nos. 230 and 234, Lot 5, the former finishing at 2,253 feet and the latter at 2,250 feet. Transcontinental Petroleum Co.'s No. 19, Lot 6 Corcovado, is dry at 2,500 feet.

Panuco

Active operations in the Panuco Field, as the week ended, are best reflected as follows: La Corona Petroleum Co.'s No. 92 Piedras, is in browen lime at 1,875 feet; its No. 106 collapsed a shoe and had to pull surface casing at 180 feet; its No. 108 is rigging, and No. 102 Delicias is ready to spud. Credito Petrolero's No. 3 Piedras is in shale at 700 feet; its No. 4 is in gray lime at 1,715 feet. East Coast Oil Co.'s No. 217 Halcon is in gray lime at 1,755 feet. La Espuela Oil Co.'s No. 3 Don Juan is in a hard gray lime at 1,670 feet. Intermex Oil Co.'s No. 3 Tampuche has spudded; and Ita Mex Oil Co.'s No. 1, same sector, is ready to spud. International Petroleum Co.'s No. 22 Tanchicuin has cemented 8-inch at 1,320 feet in gray lime. Mexican Sinclair Petroleum Corp.'s No. 11 Tananturo is in brown lime with an oil show at 1,810 feet; its No. 4, Lot 1 Camolote, has shut down for orders at 2,000 feet, the drill resting in the Tamasopa; its No. 6, same lot, is in shale at 630 feet; its No. 9 Gonzales has cemented 8-inch in lime shells at 1,150 feet; its No. 8 Zurita is in hard shale at 1,355 feet; its No. 11 Gutierrez has tested cemented 8-inch at 1,350 feet, and is resuming to drill in, and its No. 13 Gutierrez has spudded. Mexican Gulf Oil Co.'s No. 3 Flores is in gray lime at 1,470 feet, and its No. 9 Zuniga is in gray shale at 220 feet. Transcontinental Petroleum Co.'s No. 4 Piedras is in lime at 1,745 feet with oil and gas continuing to show; its No. 5 and No. 6 have each cemented 8-inch in gray lime at 1,320 and 1,352 feet respectively; its No. 1, Lot 1 Tanchicuin, has cemented 8-inch in shells at 1,410 feet, and it has a derrick up for No. 7 in the same lot. Vera Cruz Mexican Oil Co.'s No. 7 Buena Vista is getting ready to set 8-inch casing at something over 1,200 feet in gray lime. Williamson and others' No. 1 Guzman, East Maguabes, is in gray shale at 715 feet.

Cacalilao

In the Cacalilao sector of the northern fields, La Corona Petroleum Co.'s No. 175, Lot 4 Cacalilao, is rigging. Mexican Petroleum Co.'s No. 20, Lot 1, is in gray shale at 1,085 feet. International Petroleum Co.'s operations in Lot 5 follow: No. 236 is in gray shale at 1,650 feet; No. 237 has cemented 8-inch in the San Felipe at 1,200 feet; Nos. 238 and 239 are in gray lime at 1,930 and 2,020 feet respectively; No. 240 has cemented 4½-inch in the San Felipe at 1,334 feet; No. 241 is fishing for tools at 1,235 feet; No. 246 has cemented 8-inch in the San Felipe at 1,200 feet; No. 248 has done the same at 1,202 feet; No. 249 is in gray lime at 1,828 feet; No. 251 is in the San Felipe at 1,240 feet; No. 255 is in gray shale at 302 feet, and three more tests are rigging. Transcontinental Petroleum Co.'s operations in Lot 4: No. 207 is in gray lime at 1,650 feet; No. 232 is in gray lime at 1,785 feet; No. 234 is spudding; No. 239 is 700 feet in shale, and one test is rigging. In the Paciencia, just north of Cacalilao, Transcontinental's No. 9 has cemented 8-inch in the San Felipe at 1,255 feet, and No. 35 is in lime at 2,200 feet.

South Fields

In the south fields, Huasteca Petroleum Co.'s No. 30-A Cerro Azul is in blue shale at 330 feet; its No. 70 is in brown shale at 890 feet, and derricks are up over two more locations. In its Tierra Blanca, Huasteca's No. 55 is drilling in hard gray lime at 2,107 feet and its No. 57 is in blue shale at 100 feet. In Juan Casiano, Huasteca's No. 15 is in sand rock at 85 feet, and yet farther north, its No. 2 La Laja has cemented 11-inch at 2,900 feet in sandy gray shale. International Petroleum Co. is back in its Agua Nacida lease south of the Tuxpam River, where it drilled some failures two or three years ago, deepening its old No. 7, the drill at this time being in hard shale at 3,856 feet. Up in Toteco, International's No. 32 is in gumbo at 1,250 feet. Mexican Sinclair Petroleum Corp.'s No. 5 San Isidro is in hard white lime at 2,970 feet; and its No. 15, Lot 226 Amatlan, is in soft shale at 615 feet. Mexican Eagle Oil Co.'s No. 46, Lot 138 Amatlan is suspended at 2,174 feet in a sandy shale while it rigs rotary in order to get down in the formation noted; its No. 30-A Cerro Veijo has cemented 8-inch at 2,060 feet in gray shale and down in Furbero its No. 35 is a gray sand at 2,352 feet, carrying 6-inch. Penn Mex Fuel Co.'s No. 3 La Pita is in sandy shale at 2,655 feet. Transcontinental Petroleum Co.'s No. 1, Lot 16 Zacamixtle, has resumed from 2.168 feet, where it cemented 8-inch, and its No. 7, Lot 17 Zacamixtle, is spudding.

Northern Miscellany

In the miscellaneous northern districts, Mexican Petroleum Co.'s Chapacao, in the Ebano Field, offers the following: No. 41 is fishing for a split ring at 2,135 feet in gray lime; its No. 44 is in the same formation at 1,468 feet; No. 45 is in shale and shells with a showing of oil at 2,124 feet and its No. 47 has cemented 8-inch in gray lime at 1,000 feet. In Chijol, its No. 35 is straightening crooked hole at 1,921 feet, brown lime; No. 37 is in gray shale at 490 feet; No. 40 is in gray lime at 1,885 feet and No. 41 is a derrick. In its La Dicha it has two derrick up over locations and is moving material for a third. In San Pedro, its No. 12 is in white lime at 1,870 feet. In the Midway, its No. 4 is drilling in gray lime at 1,480 feet, and two derricks are up over locations, and at Mendez its No. 8 is in gray shale at 710 feet.

In Los Esteros, American International Fuel Co.'s No 24 has cemented 8-inch in gray and brown lime at 1,318 feet.

In Corcovado, La Corona Petroleum Co.'s No. 16, Lot 6, is in lime with a showing of oil at 2,395 feet, and its No. 17, same, has cemented 8-inch in gray lime at 1,180 feet. Transcontinental Petroleum Co.'s No. 23, Lot 6, is in gray lime at 1,625 feet.

In the Marland Field, Cia. Pet. Franco Espanola's No. 37 Limon is in lime and shales at 1,390 feet, and three locations are rigging and material is being moved to yet another. In the Topila district, Ita Mex Oil Co.'s No. 20 La Mula is drilling in shale at 185 feet.

In the Chapacao-Corcovado, Mexican Gulf Oil Co.'s No. 21-A is in the white lime at 2,035 feet; its No. 22 is in brown and gray lime at 1,902 feet, and No. 23 has cemented 8-inch in gray lime at 1,200 feet.

National Lines, in its Chapacao right-of-way through Ebano, has its No. 24 in gray lime at 1,975 feet; it is spudding No. 25 and is rigging for No. 29. Up in the Federal zone of the Tanchicuin, on the Panuco River, its No. 26 is shut down for the time being at 1,048 feet; and in its No. 32 Piedras, Federal zone, it has set 10-inch at 180 feet.

In the Caracol, Venable and others' No. 31 has spudded.

In Las Piedras

The International Petroleum Co.'s No. 2 Las Piedras, in the old Panuco Field, which came in last September rated at 20,000 bbls. at the shallow depth of 1,700

(Continued on Page 120)

New Mexico Field Operations

By Special Correspondent

ARTESIA, N. M., Nov. 28.—The Empire Oil & Gas Co. is the latest of the major oil companies to enter eastern New Mexico, it having made a location for a test to be drilled in Section 31-24-27. A large block of acreage, much of which is Government land, has been obtained by the Empire and the well will be drilled on a turnkey job. Other big companies to obtain acreage in this territory are the Mid-West Refining Co. and the Pure Oil Co., the former having purchased considerable acreage in Township 17, Range 28, with the Pure buying 1,160 acres in Sections 9 and 16, Township 24, Range 24.

A number of good completions were made during the week in the Artesia Field, the majority of these being in the north extension in Sections 4 and 5, Township 18, Range 28. The Ohio Oil Co. in this area completed No. 4 on the New State lease, it being shot with 150 quarts from 2,237 to 2,330 feet, the hole standing 1,700 feet in fluid before the shot. On the same lease No. 5 is being drilled to completion and topped the sand at 2,230 feet. The Ohio Oil Co.'s No. 2 on the New State lease in Section 5 is also being completed, the sand laying at 2,250 feet. Both of these wells will be shot as soon as the customary pocket is drilled below the sand.

North of the Ohio producers in Section 4, the Frontier Petroleum Co. and McQuigg Brothers have brought in a good well in their No. 1 which encountered the sand from 2,273 to 2,308 feet. This will be shot with 160 quarts.

In the eastern part of the same section, the Pueblo Oil Co. is drilling in Nos. 2 and 4, the former having picked up the gas sand at 2,260 feet. From a late report both of these wells are considerably deeper than others in the same vicinity.

Another 100-Bbl. Well

In Section 21-18-28, Flynn, Welch & Yates have completed a good well in their No. 1 Keyes which was shot with 120 quarts from 2,103-2,125 feet. The well cleaned itself and has been flowing by heads, several of which have gauged better than 100 bbls. This producer offsets the No. 3 of the Dome Oil Co. to the north, the latter being one of the best wells in the field.

In Section 17-18-28, the Danciger Oil & Refining Co. has shot its No. 3 on the Cummings lease from 2,100-2,120 feet with 160 quarts. A similar shot will be run in the upper sand from 2,000-2,020 feet. In the same section, the Ohio Oil Co. has a good well in its No. 4 on the C. J. & W. lease which will be given a shot.

West of these producers, Kersey-Conrad-Levers have completed a good well in their No. 1, located in Section 18-18-28, which made three natural flows through an 8-inch flow before being shot. A 160-quart shot was from 2,067 to 2,116 feet and the well has gauged close to 200 bbls. This completion is in a territory that has been more or less doubtful, as little production had been obtained west of the Danciger property.

Considerable interest now centers in the Chessman, Ballard, Clark's No. 1 test on the Gracie Massey permit in Section 21-18-29, which is now drilling at 2,250 feet, having obtained a rainbow 100 feet higher up. This test is to the east of the productive area, being 2½ miles north of the California's No. 1 Goodale, which is making 500,000 feet of gas but little oil, this coming from a shallow depth.

To the north of the field the Colorado Drilling Co.'s No. 1 Irvin in the SE SE, Section 8-16-28, continues to blow sand and some water from the hole at 900 feet. Efforts are being made to drive the casing and the crew is also engaged in digging out the Star machine which was partly embedded.

West of the Mississippi Stores Everywhere
FRICK REID SERVICE SUPPLY COMPANY
East of the Mississippi The Frick & Lindsay Co.

DREADNAUGHT ROTARY EQUIPMENT
OXY-ACETYLENE APPARATUS
"Camel Hair" Belting & "Camel Hair" Belt Clamps
Axelson PUMPS SUCKER RODS FITTINGS
ROEBLING WIRE LINES
Seamless Casing, Drill Pipe and Tubing

On Handling Hot Tar

TO HENRY WARD BEECHER is attributed the saying that hindsight is better than foresight. Certainly the truth of the statement has never been questioned.

We wish we could place at the disposal of every man who faces the problem of handling hot tar, the hindsight of men who have used TRANSIT Block Valve Pumps for that purpose.

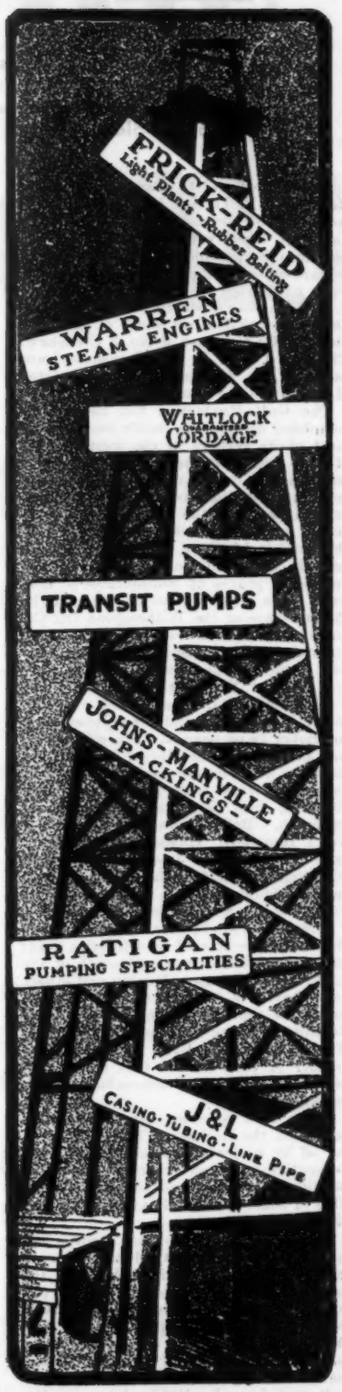
To us, who have sounded the wells of enthusiasm in TRANSIT owners, it seems almost inconceivable that any other than a TRANSIT Block Valve Pump should ever be used for handling hot tar.

The manufacturers of TRANSIT Pumps have recently published a true story about a refiner who had placed concrete foundations for four ordinary hot tar pumps when he got some facts which led him to investigate TRANSIT Block Valve Pumps. The result was that the four blocks were torn up and foundations placed to fit TRANSIT Pumps.

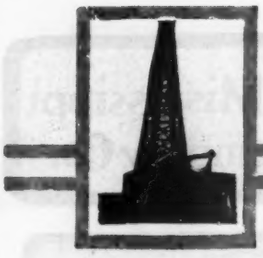
We could tell some yarns like that ourselves, and all in the world we ask in any case is an investigation. The other fellow's hindsight may be better than your foresight—that's the point.

You can find out all about TRANSIT Block Valve Pumps at the Frick-Reid Store in your field, or Bulletin 107-A will be sent on request.

At any Frick-Reid Store—complete information on Reid Powers and Engines, Donovan Boilers, and other products we handle.



FRICK-REID SUPPLY CO.
Tulsa, Okla. Pittsburgh, Pa.



Southwest Texas Fields

By Special Correspondent

Lockhart Field seems to have been extended quarter mile east by well which looks like a producer with bit 150 feet in the Serpentine. Extensions to Lockhart Field seem probable from development in south and eastern sections of field. Slow progress made on wildcats in Caldwell County.

SAN ANTONIO, Tex., Nov. 30.—George M. Ball's No. 1 Hemphill, 1,500 feet east of nearest production in the Lockhart Field with the bit about 150 feet into Serpentine carrying oil, seems to have extended the Lockhart Field more than a quarter of a mile to the east. J. K. Hughes is drilling on the Berry Davis tract, 3,500 feet south of Ball and about 1,500 feet east of No. 3 Crenshaw. The No. 1 well on the Crenshaw lease extended the field more than a quarter of a mile to the south.

The Gulf Production Co. has nearly completed drilling the inside locations on most of its acreage in the western part of the Lockhart Field and with other leases nearly drilled up the only development at this time is in the south and eastern parts of the field where considerable extensions seem probable. The Ball well looks like a producer and is set back in the middle of his 40-acre lease and hence proves up considerable of that lease. The lease adjoins on the east the Palmer lease of the Witherspoon Oil Co. and on which Witherspoon is now drilling with five producing wells on the northwest corner of the lease.

New Wells at Lockhart

A map of the Lockhart Field was published in The Oil and Gas Journal of November 19 on page 62. Since that map was prepared, John Hooser has brought in three wells in the upper part of the Crenshaw lease each good for around 200 bbls. flush production and half that on pump. Ball is now bringing in his No. 1 Hemphill. Hughes has started to drill on the Berry Davis; the Gulf is offsetting No. 3 Crenshaw with a well on the Riddle. Charles H. Houston has completed his No. 1 Allen, offsetting No. 1 Crenshaw of Hooser, and Johnson Brothers have started to drill on a tract out of the Riddle lease next south of the L. A. Cardwell lease. Dunlap and others have started a test on the 8-acre lease out of the southwest corner of the F. A. Gomillion 87-acre lease next north of the Hemphill lease of Ball. This makes a number of tests around that end of the field that will soon determine its importance.

There is a territory extending southeast from the Lockhart Field that is not cut off by wildcats that failed to find the Serpentine and hence there is raised the question whether or not the field is possible of some additional extension in that direction.

Gulf Production Co. has proven up most of the 449-acre C. Beaty lease in the western part of the field with the exception of the west line where two dry holes were drilled. The wells on inside locations have been spaced more than one location apart, but with no dry holes on inside locations. It still has a good many inside locations on other leases to drill and has the Riddle lease on the south that is not entirely proven productive on which to work. Other major companies have completed their leases excepting the Witherspoon Oil Co. which is drilling the two Palmer leases and gradually extending them south with each new well.

Caldwell Wildcats

Slow and rather indifferent progress has been made on the wildcat tests in Caldwell County. Payne & Bond have not yet reached the Edwards in their No. 2 Schawe and Wilford has not completed his test of the Edwards lime in his No. 1 Schroeder where he set casing. Both tests are in the territory west of the town of Lockhart. Wright and others' No. 1 Harry Lynch, a few miles east of the town of Lockhart, cored chalk at 2,150 feet and J. B. Ash of Tulsa is drilling at around 1,000 feet in No. 1 Jolley. Pat Armstrong is still working on No. 1 Thomas, southeast of the town of Lockhart. It was allowed to stand for some time at around 1,600 feet and considerable oil collected in it. He is still hoping to make a producer out of it. In southwestern Caldwell around the Luling Field Detex Oil Co. is drilling at below 750 feet in No. 1 Inscore, located southeast of the Luling Field, and northwest of the town of Luling. There was a slight showing of oil at about 700 feet in very tight formation. The same company is rigging up on No. 1 Bridges nearby.

Colorado County

C. E. Mahone has blocked several thousand acres in Colorado County south of Rock Island where he believes he has located a salt dome and will soon arrange for a test to be started.

Atascosa County

Eckert, Eiser & Swanson are drilling at about 500 feet in the No. 1 T. Remley in the E. Tom survey in southern Atascosa County. It is a shallow wildcat test and will stop at around 1,000 feet. Southern Atascosa and northern McMullen and Live Oak are known to have considerable shallow oil showings found in widely scattered locations. This test is an effort to locate a pool.

Bastrop County

Wilbur A. Nelson's No. 1 Lane in the J. Standifer survey in northwestern Bastrop County has spudded in and set surface casing at 40 feet and resumed drilling again. The location is 941 feet from the north line and 816 feet from the west line of the J. Standifer survey. Rycade is said to be interested in the test. John G. Knox, on the Trigg farm in northern Bastrop, is rigged up, but not started to drill. L. J. Dodwell and others in the Enoch Hariss survey east of Elgin in Bastrop have made a location. Wortham & Turner on the William Schuerman farm, southwest of Elgin in Bastrop, has completed the third of three shallow tests for oil, the deepest going to 560 feet. Coyle-Concord's No. 1 Haywood, southwest of Bastrop city, is drilling below 1,600 feet. Alexander & Lyle are making a new location on the Joe Spooner tract in the L. Leverenz survey. Plateau's No. 1 Birmingham in southwestern Bastrop has started to drill. Ideal Oil Co.'s No. 1 Storey has been drilling for a couple of weeks.

Bee County

Seagraves & Moody's (formerly W. E. Clark) No. 1 Welder in Bee County, 3 miles east of Beeville, is waiting on casing to make a test.

Bexar County

Claude McCauley's No. 2 fee, drilling 8 miles southwest of San Antonio, is drilling at around 500 feet. Marland Oil Co. in the eastern part of Bexar County on a block of several thousand acres where it has been core drilling for several weeks, will probably be ready to make a location and start a test in about another month. Texas Southern, in the Somerset shallow field, where they are making a deep test, is drilling at about 2,150 feet with a rockbit in hard formation presumably Edwards. Casing has not been set yet as previously reported. Milham Corp.'s No. 1 Eastwood, another deep test in the Somerset shallow field, is drilling at close to 5,000 feet. Utex Oil Co.'s No. 1 Vick, in southern Bexar is arranging final details of starting a test. A. G. Kiefer is rigging up on the No. 1 South Park at Southton to develop a lease in the 640-foot shallow field there. George E. Ginter is moving in to the No. 4 on the San Antonio Cotton Mill land at Southton, the first three being good shallow producers.

DeWitt County

Empire Southern Oil Co. of New York has been organized to drill a block of acreage in DeWitt County and the first location has been made on the C. G. Smith farm west of Cuero and on the west side of the Guadalupe River, which is a few miles west of Cuero. Yoro Development Co.'s No. 1 Tom Burns at Edgar in DeWitt County, is drilling at around 1,400 feet and Cuero Oil & Gas Co.'s No. 1 Holzappel, southwest of Cuero, is arranging to deepen from about 2,600 to 3,500 feet.

Edwards County

X. K. Stout's (Anglo-Texas) No. 1 Peterson in Edwards County has started to drill. The well is in the eastern part of the county and the only wildcat in Edwards County at this time.

Goliad County

Houston Pipe Line Co. has completed a gas line from its Refugio Field to its No. 1 Pettus, a wildcat test in Goliad County, and has moved the rig from its No. 1 Dick Woods test in Goliad.

Mirando District

Two new tests, one of which has already started drilling, are to be made in the Carolina-Texas district in Webb County, north of Mirando City. Bordo Oil Co., which is composed of local Laredo business men and oil men, has started drilling in the northwest corner of Block 46 in Survey 48 of the de la Garza land and will be its No. 1 de la Garza. It is 3 miles to the northeast of the discovery gas well of the Carolina-Texas Oil & Gas Trust and considerably northeast of any of the present wildcat tests. The other will be drilled by the Associated Oil on a 60-acre Usher Carson lease in C. H. Webster Survey No. 684 and is southeast of the discovery Carolina-Texas gas well. The Associated recently completed one gas well in the same survey and M. O. P. Co. recently completed another. Snowden-McSweeney, on Survey 682 in the Carolina-Texas district, has sidetracked an obstruction lost in the hole and is drilling again at 2,137 feet, where the liner was pulled in two. Johnson & DeTray are setting up on No. 1 M. Vela in Survey 1,012. William F. Morgan, in Block 4, Survey 336, has passed through the surface rock and is drilling at 450 feet. The Seagraves & Moody test being drilled by O'Hern & Putnam, on Block 15 of Survey 336, is still in surface rock at 200 feet. M. O. P. Co., on Block 9, Survey 678, is drilling in shale at 2,025 feet.

In the proven territory, George M. Ball has set and cemented casing in No. 7, on Block 73 of the Edgington subdivision of the Puig Brothers' ranch and also in No. 1 on Block 74 and is drilling in with Star rig No. 6 on Block 73 and is rigging up on No. 8 on Block 73.

In Jim Hogg County a new wildcat is to be started in the Randado district, southeast of the town of Randado on the Wilbur Allen ranch by Bob Newton. Location is now being made. E. J. Braswell's No. 1 Vela on the White subdivision in Jim Hogg that tested out on November 10 at 1,268 feet, but failed to make a well and drilled deeper, is making another test at 1,660 feet. It is claimed there was no water encountered below the other test and hence liner is being set for the present test which will be made early this week.

O. W. Killam in the Jim Hogg or Henne, Winch & Farias Pool, is drilling Nos. 27, 28 and 29 Martinez in Survey 256 of Jim Hogg County and the producers he has been completing on this survey indicate that the production at the southern end of the pool is swinging to the west a little. He is not spacing his tests regularly 300 feet apart and placing line tests 150 feet from the line, but is making the locations according to his theory as to where the production runs and seems to be hitting it.

Medina County

Gibson Oil Co. has spudded in its No. 2 Viola Wilson, 300 feet south of its No. 1 Viola Wilson, in the Ina Field. Arnett Oil Co. failed to get the production expected at 994 feet in the No. 2 Nixon and is drilling deeper. An attempt to take a core developed that the bottom of the hole was in rock and the core barrel failed to work. Drilling has been resumed until the formation softens enough to take a core. The well is a little south and west of the Eastham & Tarver's No. 1 Viola Wilson. Ina Oil Co., which discovered the Medina County Pool, has practically completed its No. 3 Schmidt on the east side of the Hondo River and somewhat south of its discovery well and a mile or more from Eastham & Tarver's well on the west side of the river. Due to the sand carrying the oil being loose it pumps out and causes difficulty in completing the wells in the Ina Field.

Recently employed methods seem to be solving the trouble and the new Ina well, it is claimed, will make around 80 bbls. a day on the pump when it is settled. Lack of pipe line and with only the drilling rigs in the county as a market source for the oil, is causing Eastham & Tarver some difficulty and while they have the derrick timber on the ground are not yet starting their No. 2 Viola Wilson. Witherspoon Oil Co. has timbers on the ground and is building the derrick for his first test in Survey 133, a mile east of the Eastham & Tarver well, and a little south and it is understood if he gets production plans at once to built a pipe line. Rio Bravo Oil Co. has had officials in the field and are contemplating a line north to Hondo to the Southern Pacific which would use the oil for fuel. Timbers are on the ground for the W. H. Snyder derrick on Survey No. 13 about 1½ miles south of the Ina wells and on the east side of the river. Detert & Olmsted have closed a deal for acreage immediately north of the Eastham & Tarver well on the Viola Wilson and are now making a location. It will offset by 300 feet the Eastham & Tarver well which is pumping about 50 bbls. when pumped about 10 hours each day.

The new field thus has timbers on the ground for three derricks and location is being made for another, the Detert & Olmsted well and Arnett Oil Co. has derrick up for its No. 3 Nixon. Probability is that Witherspoon Oil Co. will move in additional rigs and start an intensive drilling campaign on the 188 acres of leases purchased by it, provided its first well is a producer.

Guadalupe County

Roxana Petroleum Co.'s No. 1 Hagerman in Guadalupe County, near Kingsbury, has set casing at about 2,000 feet. There was a showing of oil amounting to about 5 feet of oil on top of the drilling fluid.

This is one of a number of wells drilled by major companies along the Balcones in the hope of picking up Serpentine and the geology of the location, it is claimed, indicated a Serpentine bed.

(Continued on Page 118)

This Page is for Pipe Line Officials

YOU are handling large quantities of oil through your pipe lines. This same oil is passing through your tanks. This means that your tanks are constantly wasting by evaporation the lightest and most valuable fractions in the oil.

One pipe line company has ordered enough floating roofs to make an initial installation at each pumping station *in order to conserve the gravity of the oil it is pumping*. It knows that this will make its service more valuable. Naturally, its customers will be interested in this conservation of their oil.

We should like to send you a quotation upon one or more roofs which you can install this season and observe for a few weeks. We think you will be so pleased with the results that you will conclude it profitable to install roofs on all your tanks.

Our nearest office will be glad to be of service.

CHICAGO BRIDGE & IRON WORKS

CHICAGO, 2128 Old Colony Building; NEW YORK, 3147 Hudson Terminal Building; CLEVELAND, 2204 Union Trust Building; DALLAS, 1641 Praetorian Building; SAN FRANCISCO, 1054 Rialto Building. In Mexico, HOUZE and ARMSTRONG, Apartado 422, Tampico, Tamps; HACKLEY-SIDWELL, Apartado 12, Mexico City.

462

The WIGGINS FLOATING ROOF

Keeps Oil In · Keeps Fire Out

Gulf Coast Oil Operations

By P. L. McGreal

Increase in production in Coastal area resulted from completion of number of good wells. Cap rock discovered on 10,000-acre Allen ranch and salt dome found 3 miles south of Stark, La. These may mean two prospective oil areas. Coastal operators expecting increase in crude prices.

HOUSTON, Tex., Nov. 30.—Good wells last week resulted in another increase in the estimated daily average gross production of the Gulf Coast region. Finding cap rock in a wildcat test in the southern part of Brazoria County at 820 feet was the outstanding feature of the week's developments.

The estimated daily average gross output for the week ending November 28 is 95,430 bbls., an increase of 3,165 bbls. compared with the previous week. The pools in Texas are credited with 82,325 bbls. of the total and those in Louisiana with 13,105 bbls. This is an increase of 2,540 bbls. for the Texas districts and of 625 bbls. for those in Louisiana.

Comparison of the leading pools with last week is as follows: Orange, increased 2,700 bbls.; West Columbia, increased 825 bbls.; Lockport (La.), increased 290 bbls.; Hull decreased 582 bbls.; South Liberty decreased 330 bbls.;

The following is the gross daily average for each pool for the week ending Saturday:

District—	Gross Bbls.
Batson	1,200
Blue Ridge	600
Barber Hill	75
Big Creek	1,350
Dayton	60
Damon Mound	1,050
Edgerly (La.)	450
Goose Creek	9,010
Humble	4,700
Hull	17,120
High Island	1,125
Jennings (La.)	1,275
Lockport (La.)	4,400
Markham	85
Orange	16,850
Pierce Junction	600
Spindletop	1,500
Saratoga	1,550
Sour Lake	4,000
South Liberty	10,350
Vinton (La.)	6,900
West Columbia	11,000
Welsh-Anse La Bute (La.)	30
Miscellaneous	100
Total	95,430

Southwest Fields

The estimated daily average gross production for the Southwest Fields for the week ending November 28 is placed at 41,435 bbls., a decrease of 1,500 bbls. from the previous week.

The estimate for each district is as follows:

District—	Gross Bbls.
Luling	21,500
Laredo	3,600
Somerset	2,300
Rockdale-Minerva	1,015
Calliham	240
Jim Hogg County	3,280
Lockhart	9,500
Total	41,435
Grand total for week	136,865
Grand total last week	133,615
Net increase	3,250

Operators anticipate an advance in credit balance prices in view of the fact that stocks are decreasing, having shown a decline of 867,500 bbls. in storage since August 1. The total on November 1 was approximately 13,861,000 bbls. It is estimated that 50 per cent of the total grades as "A" and 50 per cent as "B." The greater demand for crude for zero cold test lubricating calls for "A" grade from the refineries, although a percentage of the "B" grade can be used by some of the plants.

Completions During Week

In the Batson Pool, the Ada Belle Oil Co.'s No. 103 bailed dry at 300 feet and is being drilled deeper. S. R. Buchanan is bailing No. 84 Milhome at 1,625 feet.

In the Soutr Lake Pool, The Texas Co.'s No. 281 Fee is flowing 400 bbls., 50 per cent water, at 1,650 feet. The Humble Oil & Refining Co.'s No. 19 Bashara will pump at 3,600 feet.

The Humble Oil & Refining Co.'s No. 20 Smith at Goose Creek is bailing at 2,510 feet.

At High Island, the Island Oil Co.'s No. 1 McCarthy is bailing at 2,250 feet. The Gulf Production Co.'s No. 3 Smith is bailing at 3,350 feet.

In the Hull Pool, The Texas Co.-Vacuum Oil Co.'s No. 6 Hannah is flowing 400 bbls. at 3,580 feet. Yount-Lee Oil Co.'s No. 6 Merchant, a workover, is flowing 425 bbls. at 3,250 feet. The Humble Oil & Refining Co.'s No. 9 Guedry is pumping 35 bbls. at 3,700 feet. The Gulf Production Co.'s No. 7 Phoenix, a workover, is pumping 100 bbls. at 2,825 feet. The Mecom Oil Co.'s No. 3 Taylor, another workover, is bailing with 2½-inch strainer set.

At Spindletop, the Gulf Production Co.'s No. 217 Gladys is pumping 150 bbls. at 850 feet. The Unity Oil Co.'s No. 87 McFaffin is pumping 20 bbls at 950 feet. Weber-King is bailing No. 1 Henderson.

In the Orange Pool, the Continental Oil Co.'s No. 16 Chesson, deepened to 4,700 feet, flowed at the rate of 4,000 bbls. for a time and then sanded. The Humble Oil & Refining Co.'s No. 23-B Chesson, near the center of the pool, completed last week with initial flow of 7,000 bbls. at 4,700 feet, is making around 5,000 bbls. with chokers on. The same company's No. 23 Chesson is drilling. The Sun Oil Co.'s No. 1 Johnson sanded and No. 6 Gunstream is drilling in in the deep sand. The Kishi Development Co.'s No. 5 McGuire is pumping 30 bbls. at 3,350 feet. The Atlantic Oil Producing Co.'s No. 3 Hager is bailing at 3,425 feet, following a workover.

At Pierce Junction, the Rio Bravo Oil Co.'s No. 1-P Settegast on the west side of the dome, is setting screen at 3,892 feet to test 42 feet of sand.

The Roxana Petroleum Corp. went into cap rock in No. 1 Allen ranch on the east bank of the San Bernard River in the southern part of Brazoria County. The depth is reported as 822 feet.

In the Vinton (La.) Pool the Edgerly Petroleum Co.'s No. 8 Vincent is pumping 50 bbls. at 3,170 feet.

In the Jennings Pool, the Port City Oil Co.'s No. 1 Heywood is flowing 1,000 bbls. at 1,860 feet.

Wells completed during the week ending November 28 totaled 13, of which 1 was dry. The new production aggregated 6,560 bbls., including the 4,000-bbl. well in the Orange Pool that sanded, leaving 2,560 bbls. net. Eight wells are bailing at the close of the week. The new production last week was 2,815 bbls.

Two Prospective Pools

The discovery of cap rock on the Allen ranch of 10,000 acres in southern Brazoria County, Texas, and rock salt on a dome 3 miles south of Stark, La., makes two new prospective pools during November. The salt was found in two tests drilled by the Standard Oil Co. of Louisiana and the Gulf Refining Co. The depth was around 1,250 feet. Casing is being set in the three tests. The Roxana has approximately 30,000 acres under lease in Brazoria County, including the Allen and Bryan ranches and the Clement State prison farm. The Standard of Louisiana and the Gulf Refining Co. are jointly interested in a big block of acreage south of Stark and north of the Vinton (La.) Pool.

Both localities were explored by means of the seismograph and torsional balance before being drilled with gasoline driven rotary rigs. It is pertinent to say here without disparaging the scientific value of these geophysical tests that all the new domes, 7 or 8, were spots characterized as "suspicious" long before the advent of either the seismograph or torsional into the coastal country. All showed sulphur water springs, gas seepages or "paraffin dirt" and the mechanical tests merely confirmed these suspicions.

South Louisiana

In the Lockport district, near Lake Charles, Calcasieu Parish, the Vacuum-Gulf Co.'s joint No. 5 Miller is drilling around 3,410 feet. A location has been made for No. 6. The same interests also made a location for No. 2 Bordages. No. 1 Prien Lake is drilling below 5,600 feet and No. 3 Lock-Moore is around 5,135 feet. No. 1 Freidberg and Wolf is at 4,110 feet and No. 2 Farquhar is around 2,334 feet. The Marland Oil Co. of Texas' No. 1 Phoenix is at 5,306 feet.

In the Vinton Pool, the Gulf Refining Co.'s No. 38 Star is rigging up to start drilling. The Texas Co.'s No. 2 Amos Gray is at 3,300 feet and No. 1-C Gray is around 1,235 feet. The Vinton Petroleum Co.'s No. 16 Rescue is deepening at 1,500 feet. No. 3 Gray is drilling around 2,455 feet. The Edgerly Petroleum Co.'s No. 9 Vincent is drilling below 3,500 feet.

In Calsasieu Parish, outside of the pools, the Standard Oil Co. of Louisiana set 6-inch casing in No. 1 Industrial Lumber Co. at 1,288 feet and the Gulf Refining Co.'s No. 1 Lutcher Moore Lumber Co. set 6⅝-inch casing at 1,275 feet. These are around the new dome 6 miles north of Vinton. The Gulf Co. is rigging No. 1 Lock-Moore. The Big Woods Oil Co. is rigging No. 1 Robertson and the Union Sulphur Co. is drilling Nos. 1 Verdine and 1 Dorion. The same company is rigging No. 1 Fee.

In Cameron Parish, the Yount-Lee Oil Co.'s No. 1 State land at Hackberry Island is around 3,000 feet. No. 1 Vincent is rigging. The Pure Oil Co.'s No. 2 Sweet Lake is idle.

In St. Mary Parish, Leland and Wilcox's No. 1 Caffery, Cote Blanche Island, is below 1,600 feet.

In Iberia Parish, the 'United Oil & Gas Co. spudded in No. 1 Saltmine at Jefferson Island and has a derrick up for No. 1 State land.

In Acadia Parish, the Estropal Oil Co. is drilling No. 2 Regan.

In Rapides Parish, T. R. Hiney set surface casing in No. 1 Barrow.

In Catahoula Parish, Ferguson & Kimbrough's No. 1 Nichols is around 1,455 feet.

In St. Martin Parish, the Ohio Oil Co.'s No. 1 Hager Dome is shut down at 845 feet. Croecus & Mannington's No. 1 is rigging.

Tests temporarily shut down include the Bristol Oil & Mineral Co.'s No. 1 Desirebreaux in St. Landry Parish, Union Sulphur Co.'s No. 2 Lock-Moore in Jeff Davis Parish.

Drilling in the Pools

On the north side of the Batson Pool, the Kirby Pet-Capitol Oil Co. are preparing to sidetrack No. 3 Hodges, the big wells that sanded and was lost. The Gulf Production Co.'s No. 1 Smith is drilling around 735 feet with No. 163 Wing rigging. The Sun Oil Co. is starting No. 75 Hooks and the Peer Oil Co. No. 1 Christian. S. R. Buchanan has a location for No. 85 Milhome. On the east side, The Texas Co.'s No. 1 La Jarza is drilling around 3,500 feet. In the old part of the pool, the Ada Belle Oil Co. has a location for No. 105 Paraffin. The Paraffin Oil Co.'s No. 2 Paraffin is drilling around 575 feet. The Sterling Oil Co. is starting No. 2 Hooks.

On the east side of the Saratoga Pool, the Vacuum Oil Co.'s No. 2 Teel is below 3,400 feet.

In the Sour Lake Pool, the Yount-Lee Oil Co.'s No. 2 Gilbert is around 2,435 feet. The Lake Graham Oil Co.'s No. 18 Bashara is at 3,575 feet. The McNamara Oil Co.'s No. 14 Bashara is at 1,090 feet. The Lake View Oil Co.'s No. 45 Hardin is drilling around 2,135 feet.

The Yount-Lee Oil Co.'s No. 1 McFadden, the deep sand producer on the southeast side of Spindletop Pool, is flowing 600 bbls. per day. The same company is drilling around 1,810 feet. The Stella Oil Co.'s No. 7 Keith-Ward is at 1,335 feet. The Hamm-Brechlin Drilling Co.'s No. 2 Gladys is at 800 feet. The Lillian Oil Co.'s No. 2 Terrell is around 550 feet. The Gulf Production Co. is

(Continued on Page 118)

East Central Texas

By Special Correspondent

CORSICANA, Tex., Nov. 30.—The East Central Texas territory experienced a featureless week in the field. Progress is noted on a number of tests, but the completed wells were failures.

In Freestone County the Pure Oil Co. was drilling below 550 feet on No. 1 Seals, McNulty survey.

In Henderson County the Atlantic Oil Producing Co. had started drilling No. 1 H. L. Gamble, Williams survey. Four other tests in the county are shut down.

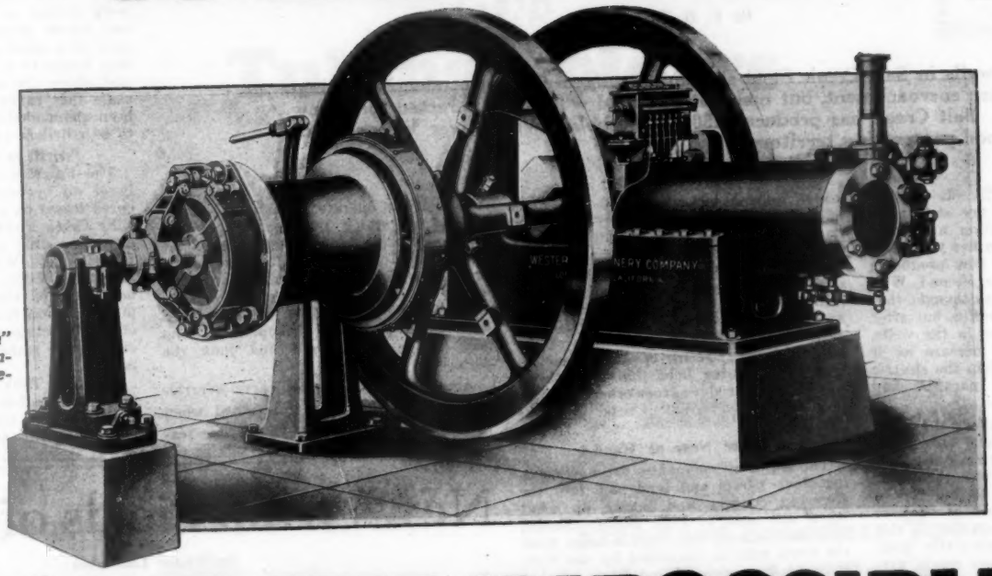
In Kaufman County, Cranfill & Griffiths' No. 1 Mook, Albes survey, was drilling below 2,300 feet. D. J. Harper's No. 1 Williamson, Crane survey, penetrated chalk at 788-1,320 feet and was drilling below 1,980 feet.

In Limestone County, Eisenmayer and others' No. 1 Rivers, Abbott survey, was abandoned at 1,781 feet and No. 2, on the same farm, is drilling below 1,175 feet. Lewis & Hunter abandoned as dry their test on the D. Oliver farm, Dennison & Sullivan survey, at 3,204 feet. This test got Austin chalk from 2,270 to 2,663 feet. The Magnolia Petroleum Co.'s No. 2 Stroud, P. Varela survey, tested dry at 2,910 feet but is drilling deeper. It got Austin chalk from 2,265 to 2,670 feet.

In Navarro County the Carrita Oil & Gas Co. was below 1,950 feet in the Austin chalk, in No. 1 J. Slime, Donaldson survey. In the Richland district, Barclay & Meadows' No. 5-A I. N. Cerf, J. Smith survey, made a 60-bbl. well in broken sand at 1,600 to 2,114 feet. Farrish, Watts & Collins' No. 4 I. N. Cerf, J. Smith survey, swabbed a small show of oil with much salt water at 2,973 feet but had not drilled any deeper. Dr. Johnson and others are rigged up on No. 1 Fullwood, Malone survey. The Navarro Oil Co.'s No. 8 T. & B. V. Railroad survey, was abandoned as dry at 2,200 feet. Kerr & Gillette were below 2,900 feet in No. 1 Dr. Sneed, Moore survey. The Sun Co. abandoned the location for No. 3 Hillburn, Boren survey.

WESTERN

Through the Fields with



The "Western" Oil Field Engine and Reverse Gear.

DOING THE IMPOSSIBLE?

The Signal Hill Field, Long Beach, California.

Pumping deep wells efficiently and economically is a subject on which oil men have differed considerably. Many there were who believed it could not be done satisfactorily with gas engines. In the Signal Hill Field, Long Beach, California, (shown below), this question has been definitely settled. The wells in this field range upward to 5,500 feet in depth, and many of the deepest ones are equipped with "Western" Oil Field Pumping Engines, using gas for fuel, which have been operating over a sufficient period of time to produce definite records of operating and upkeep costs, and results. In many instances they are pumping the maximum quantity of oil twenty-four hours a day, month in and month out; providing all the flexibility and speed for cleaning that can be obtained with steam plants; and all at greatly reduced costs. We will gladly furnish any interested company the records of these wells, which prove unquestionably that deep holes can be efficiently, economically, and satisfactorily pumped with "Western" Gas Engines.

WESTERN MACHINERY COMPANY

General Offices and Factory: 904 North Main Street,
Los Angeles, California.

720 So. Kenosha St.,
Tulsa, Oklahoma.

San Francisco Offices and Factory:
Eighteenth and Alabama Streets

1106 Nineteenth St.,
Bakersfield, California.

Rocky Mountain Area

By F. B. Taylor

Edge wells in Salt Creek Field showing steady decline in production owing to water encroachment, but main part of field will not be affected for many years. Salt Creek has produced 150,000,000 bbls. Wind River Valley looks like good prospecting territory.

CASPER, Wyo., Nov. 28.—Edge wells in the Salt Creek Field are showing a steady decline in production and it is now considered that within five years several edge tracts that are now producing will be abandoned in the Second Wall Creek sand. At first it was thought that the decline was due to paraffin, but after trials with electric heaters in the wells, the production failed to increase as it has done in other wells when the electric heaters were used and paraffin had stopped up the sand pores.

This decline does not affect the main field to any great extent and only those wells that are on the extreme edge of production are affected. It is natural that the field should show a decline for to date, about 150,000,000 bbls. of oil have been produced from the field and as this oil is taken out, the hydrostatic pressure on the edges of the pool would naturally force the oil higher up on the structure and leave those wells that were drilled right on the contact line of oil and water, to produce water only.

The decline on the edge does not portend any near depletion of the main field, for at the rate of travel, it will take a lifetime for the wells on the inside of the Shannon escarpment to become affected materially. At this time, the production of the field is coming from the first and second Wall Creek sands. The third Wall Creek, Muddy and Lakota sands are either shut in or producing in only a few wells. As there is enough oil being sent from the field daily to supply the needs of the market the larger operators are in no hurry to pull more crude from the wells and the Midwest has shut in all of its deep Lakota sand wells, also the Sundance wells, so that only about 50 per cent of the total potential production is now coming from the field.

Pump Pilot Butte Deep Well

The deep well at Pilot Butte will be pumped for a time as it stands. The hole has been cleaned out and the well has filled to the top with oil, a liner has been set to shut off the cave that came from the open hole and the well is now being tubed. Later on the Argo Oil Co. expects to ream out the small hole to regular size, set a string of casing to the top of the sand and drill the well in.

The Mack Oil Co. drilling on Sheldon Dome has compared its well records with that of the Argo well and the two records coincide to a remarkable degree. The Mack wells on Sheldon Dome have been drilled to test the third Frontier sand, but the Pilot well is either in the Muddy or the Dakota sand and the Sheldon Dome tests have never drilled this far. The Mack Oil Co. expects to find oil in the Muddy or Lakota also, since the Pilot Butte deep well shows oil in same.

The whole area of the Wind River Valley from Riverton north to where the mountain uplift closes in close to the river, now appears good prospecting territory on the strength of the Pilot Butte deep strike. This wide valley is covered with Tertiary so that it is quite hard to read the geology, but several structures are known and many more believed to lie just under the covering. Up to the present, the Muddy, Dakota and Lakota sands were considered as nonoil bearing, but since the development of the deep sands at Salt Creek, opinion has undergone a change and the oil men are now taking the matter of the deeper sands seriously. In 1918 when the geologists first began to propose deeper sands as oil bearing, they were laughed at because a few tests had found these deep sands water bearing in some of the wildcat wells. Many of our ablest oil men in Wyoming held that Salt Creek would never produce from other than the first and second Wall Creek sands at that time.

Power Near at Hand

The major oil companies are now sending their scouts and land men into the Riverton country and taking up what tracts are open at Pilot Butte. Should this development turn into a large field, the work will be simplified by the Government dam across Wind River at that point and the electric power made at the Government plant from the head of water obtained by the dam. This power is within a mile of the present Pilot Butte Field and because of its cheapness, would be much better for field work than the regular method of steam boilers and engines for wells.

The Riverton project of the Government is designed to irrigate an immense area of arid land between Riverton and Shoshoni, the dam across the Wind River has been built and a great reservoir made to impound the water. This reservoir is located up on the flat from the Pilot Butte Field and the Government's electric plant is located at the spillway end of the reservoir. The electric plant is now in operation, much of its power going to the huge drag line machine that are engaged in digging the big ditch that will carry the water, when completed, to the arid lands. It would be an easy matter to carry this power to the oil field for use there.

The refineries are taking all the crude they require for the market as it now stands and some oil is going into storage. As a result the fields are not being called upon to produce at capacity and some of the operations are shut down because of local conditions that prevent the shipment of crude. Notches, near Powder River, west of Casper, is shut in and probably will not be called upon for more oil until next spring. This field has a specially insulated pipe line to the railroad and could ship all winter if necessary.

Shut-in Fields

Mule Creek Field has been shut in because it is necessary to ship the production a long distance by rail. Mule Creek lies in the northern part of Niobrara County and its oil must either go out through South Dakota and Nebraska and then back into Wyoming to reach a refining point, or else up through Montana and then back down into Wyoming.

Rex Lake Field lies south of the Rock River Field in Albany County and it is also shut in as there is enough production from the wells at Rock River to provide all the oil the present demand calls for.

Osage Field in Weston County presents a problem to the oil operators engaged in producing there. This field was taken up by a large number of speculators when it was first opened and as a result the leases are mainly small tracts and therefore costly to operate. If a merger could be had by which these small holdings could be grouped under one company, the field would pay, but as it now stands, few of the operators are making anything out of the production and as the production falls off, this condition will tend to eliminate many of the operators who will pull out the wells and junk the material.

As many of the leases carry overriding royalties that were contracted when the area looked like a big field, this feature adds much to the onerous condition under which the small operator finds himself at present and apparently there is no hope in sight. If all the wells were under one control, it is likely that the field could be made to double its present production of about 400 bbls. daily.

An effort is being made by the Pioneer Development Co. to bring back production in the Fossil Field, near Kemmerer, Wyo. This field had some six or eight wells drilled to about 300 feet in 1918 and which produced about five barrels each of a good grade of crude. The oil was found in a Tertiary sand lens and just above the sand is a layer of soapy shale that caves badly. The wells have been abandoned for several years but are to be redrilled and more holes put down.

Drill in Johnson County

The Fairway Oil Co., composed mainly of oil operators of Casper, have secured leases on a structure adjoining the Billy Creek Field in Johnson County and expect to start a well there in the near future. The Wilson Dome test of the Marland Oil Co., located about 40 miles northwest of Casper, is setting 10-inch pipe at 2,200 feet and will make a test of the Tensleep sand. This structure is expected to make black oil, if production is found.

The May Tank & Supply Co. has closed its Casper office and will abandon its trade here for the present. The Marion

(Continued on Page 132)

News from Fields of Canada

By Victor Lauriston

CHATHAM, Ont., Nov. 26.—In the Turner Valley, Field, southwest of Calgary, Vulcan Oils, Ltd., which recently reported a show of light oil just below 3,100 feet, is carrying the test deeper for commercial production. The test is now drilling below 3,200 feet, with the drill working in a hard formation. There is a possibility of another sand being encountered around 3,300 feet, but the big productive sand in the Royalite Oil Co.'s No. 4 was struck in the Madison lime at 3,740 feet. Vulcan Oils, Ltd., is planning to go to that depth if commercial production is not encountered in the upper horizons.

The setting in of winter is not expected to interfere materially with drilling operations in the Turner Valley Field. Royalite Oil Co.'s Nos. 5 and 6 are both drilling steadily. MacLeod Oil Co., Big Chief Oil Co. and Advance Oil Co. are also actively drilling. At present the Vulcan test is the farthest advanced and is expected to finish before the end of 1925. The field is illumined by large gas fires from the burning of waste gas and the territory is spotted with a score of derricks, some of them dating back to the days of the Calgary boom. Though Sheep Creek is frozen throughout the greater part of its course and there has been heavy frost and considerable snow, the grass in the neighborhood of the burning gas flares is a vivid green; and the heat keeps open water in a portion of the creek. Geese quite often hover above the fires, attracted by the light and heat, and, becoming dizzy with the odor of the gas, are easy marks for hunters.

The Turner Valley development, following the spectacular results in Royalite No. 4, has had the effect of diverting attention from the Irma-Wainwright Field, with the result that relatively little progress has been made in the latter field this season. The chief development has been the completion by British Petroleums, Ltd., of No. 3-A, close to No. 3 on Section 29-45-6w4. No. 3 got a fair show of oil, but had to be abandoned last year owing to drilling and producing difficulties. No. 3-A was located close to No. 3 and was completed this summer, with an estimated production of 50 to 75 bbls. a day, according to latest reports. The crude in No. 3-A is stated to be a lighter product than the heavy asphaltic crude in British Petroleums' Nos. 2 and 4, but the well has not yet been put on a steady pumping basis. Several carloads of the heavy crude from Nos. 2 and 4 wells were shipped this season for fuel oil purposes, but it is understood that the new Alberta Refineries, Ltd., plant at Edmonton will handle the entire production when it starts operations.

In the Border Field, near Coutts, Urban Oils, Ltd., of Calgary, Section 4-1-15w4, is reported underreaming at 2,675 feet on its Moodie No. 1. It is reported that a syndicate including George Muir, who is drilling No. 1 Moodie, William Maughan of Montana and a number of others have taken a 30 days option on the Lethbridge Oils, Ltd., No. 1 Baalim, Section 12-1-15w4, and are planning to complete the test. No. 1 Baalim was one of the group of tests started on the Quarantine Reserve area in the Border Field three years ago, and was financed by a group of Lethbridge men headed by A. G. Baalim. The test was carried to 2,030 feet, but had to quit work in the fall of 1922 owing to lack of funds; but the hole has been kept in good shape. It is likely that the 8-inch casing will be pulled and the 10-inch carried on down.

In the Medicine Hat Field, No. 1 Roth, a deep test at Police Point, is reported drilling at 2,300 feet. This is a considerable distance below the Medicine Hat gas sand, and it is thought there is a chance of production at about 2,400 feet, though the test will be carried deeper if necessary. The test is being drilled under an arrangement with the city of Medicine Hat, which is to take over the well at a fixed price if it is a gasser only, while the Roth syndicate will handle the production if oil is encountered.

In the province of Saskatchewan, surface showings of natural gas are reported to have been found on municipal property at North Battleford, on the bank of the North Saskatchewan River. The gas burned with a clear white flame. Professor W. C. Worcester of the University of Saskatchewan has submitted a report on the gas showings, and North Battleford citizens are seeking the assistance of the Provincial Government in development work.

Imperial Oil, Ltd., is erecting an office building, garage and warehouse at Cranbrook, B. C. It is expected the plant will be ready for occupation by next spring. J. P. Palmer will have charge of the distribution at Cranbrook.

BOVAIRD

Grip

Tubing Spiders

Bovaird & Seyfang Boilers and Engines

Hazard Wire Lines

Spang, Chalfant & Co., Inc.

ETNA

Casing, Tubing and Line Pipe

Standard Seamless Tube Co.
Seamless Casing

SUPPLY BOVAIRD COMPANY

Wall Manila Drilling Cables and Bull Ropes

Republic Rubber Co.
Drilling and Pumping Belts

Bovaird *Grip* Casing Elevators and Spiders

The BOVAIRD SUPPLY CO.

904 Mid-Continent Bldg.
Tulsa, Okla.

GENERAL OIL WELL SUPPLIES

....STOCKS AT....

Bristow, Okla.
Tulsa, Okla.
Sapulpa, Okla.
Slick, Okla.
Beggs, Okla.
Okemah, Okla.
Independence, Kansas
Winfield, Kansas

California Field Operations

By L. P. Stockman

A 2,500-bbl. well in the northwest extension of the Long Beach Pool is an unexpected feature. Water breaks in on Shell's good well in Rosecrans. Inglewood's further decline. Shell's No. 3 Fisher at Fullerton increasing its production. Wildcat operations.

LOS ANGELES, Cal., Nov. 28.—Kolbush & Johnston's No. 1, northwest extension of the Long Beach Field, blew in early Sunday morning and is still flowing wild, doing about 2,500 bbls. daily with considerable gas. The immediate area was only recently opened up and was heretofore productive of only 500-bbl. wells. The result was that no unusual precautions were taken and no control head was in place. The completion depth was 4,296 feet, nearly 300 feet shallower than previous completions. This new completion gives rise to the belief that there will be several more good wells in this district within the next 90 days.

Two other wells were finished in the northwest extension of the Long Beach Field during the past week and both will undoubtedly stimulate new development work, as the production secured was fairly good. The larger of the two was George W. Johnston's well No. 1, which was brought in from 4,368 feet after being finished with a 4½-inch liner carrying 60 feet of shop perforated. The daily output, 705 bbls. of clean 22.1 gravity oil, is flowing through a ½-inch bean under a pressure of 660 pounds. A. J. DeLaney's No. 1 Long Beach, just preceded this well and, although it was somewhat smaller, the initial output, 460 bbls., was of a little better quality, testing as it did 23.6 degrees. The hole was carried down to 4,450 feet and finished with a 4½-inch liner carrying 100 feet of 80-mesh screen. Although this is Delaney's first personal undertaking from a development standpoint, he is not a newcomer in the field by any means. His first work at Long Beach was in the capacity of field superintendent for Joseph Dabney. Delaney later became a partner with Dabney and finally stepped out for himself by organizing the Delaney Producing & Refining Co. The latter undertaking has proven a very successful one and Delaney is to be congratulated on his initiative. He was one of the first to take advantage of the northwest extension and has three other drillers on his drilling chart, one of which, No. 2 Long Beach, now at 4,370 feet, is about ready for production.

Several new locations were staked this week by various operators and it begins to look as though there will be an increase of at least 25 strings of tools in the extension within the next 30 days. The Bush-Voorhies Oil Co. is hauling in material for No. 1 Leeds and No. 1 Just, both out on the extension, while the Craig-Burns Oil Co. has flagged locations for wells Nos. 6 and 7 nearby. The Fred B. Foster Co., which was not any too successful in the old area, is building rig for No. 78. The Restof Drilling Co., reported to be another Foster holding, has also acquired several drilling sites. Franklin, Andrews & Zellers, who already have one driller in this area, are building rig for another, No. 2. Kalbush & Johnston are following a similar procedure, their new rig going up at Western & Cameron Streets. S. L. Johnston has staked location for his initial well but, since no material has yet been hauled in, rig construction should not get under way for the next few days. The Pan American Petroleum Co. recompleted No. 1 Betz, located in the older area, after redrilling and deepening it from 3,875 feet to 4,800 feet. The hole was finished with a 6¼-inch oil string carrying 1,175 feet of 100-mesh screen landed on bottom. The well came in flowing through a ¾-inch bean at the rate of 1,500 bbls. a day but it has since dropped to 600 bbls. and may, perhaps, show a further decline, as the output is still cutting around 20 per cent. Number 4-A Booth, of the San Martinez, in the southwestern part of the field, was given a production test at 4,100 feet, but its failure to develop commercial oil resulted in a resumption of drilling. The United made another test of its No. 2-A Bixby out on the northwestern front but it is still showing considerable water. The test made from 4,462 feet showed the well capable of making 50 bbls. of oil and a similar amount of water. The company had much better success with No. 1 Lineberger, also in the extension but a little closer to production. This new well, just finished, came in flowing 510 bbls. of 22.1 gravity oil from 4,430 feet. Lineberger, who is a congressman from this area, led the fight several months ago to open up this territory for drilling. The contested area, known as Los Cerritos, was the site of many beautiful homes, and these residents carried the action to the Superior Court but lost out. As a result some 35 or 40 derricks have already risen during the past two months.

Rosecrans

It looked for a short time as though the Union Oil Co. was destined to bring in a big well in No. 2 Rosecrans, but water trouble developed while the production test was being made, and another cement job will be necessary. The well was turned loose after being redrilled and deepened to 4,667 feet and flowed for several hours at the rate of 1,500 bbls. a day. Water broke in, however, and shortened the well's present life. The most important new work started by the Union this week was No. 3 Padelford in the southern part of the field, due to the fact that very little drilling has been done on the property. No. 1 Gordon, which looked fairly promising at 6,640 feet, is still standing cemented but will probably be drilled out and given a test within the next few days. It is quite probable that one or two wells on the Howard Park property will also be turned loose, as several of them are now in the oil sand. The Hercules Gas Co. redrilled and deepened well No. 2 from 4,264 feet to 4,679 feet and boosted its daily output from 50 to 380 bbls. The oil, which tests 33.9 degrees, shows a cut of 2 per cent. Number 3 Athens of the Pacific Petroleum came in barefooted from 4,683 feet, the initial output being 390 bbls. of 36.1 gravity oil. This hole was redrilled and deepened from 4,333 feet, from which depth the first production was secured sometime ago.

No. 5 Athens of the Julian Petroleum Co. made 500 bbls. of oil from 4,926 feet during the first 22 hours, and then went to water. It is believed that the water is coming in just below the shoe joint of the 6¼-inch at 4,857 feet and a cement bridge will be placed at that point. The Henderson Petroleum Co. has practically given up the idea of securing commercial oil production in No. 4 Athens and will probably convert it into a gas well. A twist off sometime ago at 4,810 feet left 600 feet of drill pipe in the hole and, although the company has attempted to fish it out or sidetrack, its efforts have been in vain. George F. Getty reports a little oil sand in No. 2-A Athens at 5,230 feet and No. 6 Athens at 5,149 feet, both of which are being carried down to the deep sand as a result of the failure to show anything higher up. The Barnsdall Oil Co. is having a little difficulty getting a water shutoff in No. 7 O'Dea but it is believed that the present cement job will prove successful, as everything looks promising. The company spudded in No. 8 O'Dea and has just cemented a string of 16-inch at 919 feet. Number 7 Rosecrans, the company's remaining driller in this area, is rotating ahead of 4,100 feet. It does not look as though the General Petroleum is going to be able to develop commercial production on its Vaughn lease. The company has just finished making an exhaustive test of No. 1-A Vaughn, drilled to 6,109 feet and plugged back by stages to 5,835 feet. The hole at present is showing a little gas and a considerable amount of water.

Inglewood

The daily production at Inglewood showed a further decline during the past week, due principally to the fact that there was only one small new well finished during the period in question. The new well added was No. 6-A Lloyd of the Petroleum Securities which made 50 bbls. of 15.8 gravity oil when put on the beam at 2,074 feet. The Associated has started to deepen No. 14 Vickers, finished a few months ago at 1,830 feet. The well only made 125 bbls. a day upon its initial test and company geologists are of the opinion that this figure can be bettered with a little more hole. The company reports a shale streaked with oil sand in No. 42 Vickers at 1,900 feet but the present showing does not warrant a test and drilling will continue. Oscar Howard got a few small colors in his No. 1 Dominguez but the hole looks like a duster at 4,900 feet. The Mohawk Oil & Gas Co. is preparing to test out the showings found in its well No. 5 at 3,235 feet, at which depth a fairly well saturated oil sand was picked up. The indications are considered very favorable and, while a completion would not involve any extensive work, big production would be somewhat surprising. The Shell Oil Co. is still battling with water in No. 13 Rindge but does not seem to be able to overcome the handicap. The Standard Oil Co.'s deep test well No. 6 on Los Angeles Investment Lease No. 2 is now nearing the 4,300-foot level and, since it has not yet picked up anything of importance, the outlook is rather disappointing. The failure to find even a few colors in this hole does not preclude the possibility of developing deep production in the center of the field, as it is too far removed from the apex of the structure to have any direct bearing on it. Every deep test drilled in the field to date has been along the edge and outside the proven limits of the upper zone. None of the successful producers in this field are pressed for crude oil and it is believed therefore that the drilling of a favorably located deep test will be held up for some little time yet.

Torrance

The Chanslor Canfield Midway Oil Co. failed to bring in a new well during the past seven days and brought its record at Torrance of a well a week to a close after maintaining the average for practically three months. Numbers 35, 36 and 99 on the Del Amo property are all under the 3,000-foot mark and it will therefore probably be another two or three weeks before the company will be in a position to resume its record. The Standard Oil Co. finished well No. 5 on Marble Lease No. 2 early this week and brought in a 70-bbl. pumper, the oil testing 23.8 degrees and showing a cut of 2 per cent. The hole was finished with a 6¼-inch liner carrying 300 feet of 70-mesh screen. The Standard is only doing such drilling as is necessary by lease requirements on the Marble lease. On the adjoining Marble property, which the Standards owns in fee, the company shut down production aggregating about 2,500 bbls. a day a few weeks ago, and is doing no new development work. George F. Getty has finished rigging up his No. 28 Torrance and will probably spud in within the next few days. The drilling of this hole will complete Getty's obligations at Torrance and future work will be centered elsewhere.

The General Petroleum Co. finished No. 4 Dabney at Huntington Beach, and, while the output is still cutting considerable water, it is about the best that can

(Continued on Page 120)

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Following is a list of tankers, date departed, destination, kind of cargo and amount in barrels:

Crampton Anderson, November 16, New York, refined	76,893
Hagood, November 16, Boston, crude	75,152
Robert E. Hopkins, November 19, New York, crude	76,027
Miller County, November 17, Philadelphia, crude	77,169
Swifteagle, November 17, Fall River, crude	75,647
Charles Pratt, November 18, New York, tops	105,280
W. M. Irish, November 19, Philadelphia, refined	77,192
Cerro El ano, November 19, Boston, crude	95,939
Gulfqueen, November 20, Port Arthur, refined	75,877
Bidwell, November 22, Philadelphia, crude	75,996
Franklin K. Lane, November 22, New Orleans, refined	73,764
Coastwise	
J. A. Moffett, November 17, Seattle, fuel	64,296
K. R. Kingsbury, November 17, Richmond, crude	83,191
Los Alamos, November 17, San Francisco, refined	40,776
Los Angeles, November 17, Martinez, crude	70,299
Lubrico, November 17, Willbridge, refined	82,188
Standard Service, November 17, San Diego, refined	12,877
Warwick, November 17, Martinez, refined	40,777
D. G. Scofield, November 18, Richmond, crude	75,095
Deroche, November 19, Avon, crude	72,011
Captain A. F. Lucas, November 20, Astoria, refined	36,182
Richmond, November 20, Portland, crude	64,718
Salina, November 20, Portland, fuel	60,087
Utacarbon, November 20, Martinez, crude	75,213
D. G. Scofield, November 22, Richmond, crude	72,339
K. R. Kingsbury, November 22, Richmond, crude	82,986
S. C. T. Dodd, November 22, Point Wells, refined	80,328
Exports	
Anatina (Br.), November 22, Balboa, fuel	49,874
Varanger, November 18, Japan, fuel	78,937
Dilworth, November 19, Manila, fuel	65,893
Paul Shoup, November 19, Balboa, fuel	75,741
M. H. Whittier, November 20, Balboa, fuel	65,187
Tamaha (Br.), November 20, China, fuel	60,197
San Gaspar (Br.), November 21, Chile, fuel	101,543
China Arrow, November 22, China, refined	90,255
India Arrow, November 22, China, refined	85,967
Mina Brea (Br.), November 22, Vancouver, crude	40,619
Santa Maria, November 22, Chile, fuel	80,938
From Ventura	
Tulsagas, November 18, Avon, crude	74,872
From Port San Luis	
Montebello, November 21, Oleum, crude	72,133
R. J. Hanna, Novembere 17, Point Wells, refined	76,297
Liebre, November 19, Portland, fuel	64,190
La Purisima, November 21, Seattle, refined	38,136

Trucks give your service stations better service when they ride on BUDD-MICHELIN DUALS and PNEUMATICS

YOUR service stations want oil and gas—not alibis.

Your trucks may have to get through miles of roads that never knew a steam-roller—and they have to get through on time.

They have to bowl along on the straightaway—make speed without jarring the chassis to pieces.

They can do both on Budd-Michelin Dual Wheels and pneumatics. Traction? Yes. Cushioned speed? Yes. And economy—15,000 to 30,000 miles to the set of pneumatics. That's the record in the heavy bus industry.

Let's tell you more about the experience of oil and gas companies with Budd-Michelin equipment: seven identical wheels—dualed in the rear, singles in the front, one spare—all interchangeable. All regular size tires—available everywhere. One man alone can change a wheel in a few minutes.

All truck manufacturers can give you Budd-Michelin Dual Wheels on new jobs—or your present trucks can be converted to Duals. Talk to your dealer or write us.

BUDD
WHEEL COMPANY
Philadelphia

Pennsylvania-West Virginia

By D. S. Wakenight

Washington Township, Hocking County, Ohio, shows a well starting at 350 bbls. a day, largest of the year in the deep sand territory. Several other good deep sanders. One fair-sized well the best in West Virginia. Dry hole in fifth sand in Washington County, Pennsylvania.

PITTSBURGH, Pa., Nov. 30.—The week of development work ended with the completion of a near-gusher in the deep sand territory in southeastern Ohio.

Last week the Gordon Oil Co. drilled through the Clinton sand in a second test on the George Anthony farm. It was given a shot on Friday and during the ensuing 24 hours produced 350 bbls. The location is in the southwest quarter of Section 14, Washington Township, Hocking County. By comparison with other wells completed in the deep territory it is the largest during the year.

Other deep sand completions while not so large are good producers. In Section 15, Hanover Township, Licking County, where the Carter Oil Co. has been completing good wells for several months, on the Jacob Vandenbarg farm, the same company has completed and shot No. 11 in the Clinton sand. It produced 100 bbls. the first 24 hours. In Section 3, Bowling Green Township, Licking County, the Midland Oil Co. completed and shot in the same formation No. 3 on the Frank L. Orr farm. It produced 140 bbls. the first 24 hours, flowing and swabbing. In the southwest quarter of Section 6, Ward Township, Hocking County, the Murray City Oil & Gas Co.'s No. 7 on the Ackers heirs' farm, was drilled through the Clinton sand. It produced 78 bbls. the first 24 hours and has not been shot. A dose of the high explosive fluid should send the production up to 150 bbls. a day. In Section 14, Jefferson Township, Knox County, the test on the J. D. Greer farm, owned by Brooks Reed, is a gasser in the Clinton sand, good for 1,000,000 feet of gas a day.

The East Ohio Oil Producing & Refining Co. has a 10-bbl. pumper in the Berea grit at No. 8 on the Charles Scholes farm, located in Section 13, Brown Township, Knox County. In the Newark district, Section 1, Madison Township, Licking County, Haymen and others have a 4-bbl. pumper in the Berea grit at a second test on the J. W. Neibarger farm. In Newport Township, Washington County, O. S. Reckard & Co. have a duster in the Keener sand at No. 11. on the F. F. Dana farm.

Licking County Completions

In Section 9, Franklin Township, Licking County, T. J. Bebout's test on the E. D. Disbennet farm is a light pumper in the Berea grit. In Madison Township, Section 5, the A. H. Heisey Co.'s test on the Lewis Martin farm, is dry in the same formation. The Ohio Fuel Supply Co. got a gasser at No. 5 on the Orville Kiger farm. In Section 4, W. W. and A. T. Wehrle have a very light pumper on the J. Q. Hickman farm. The same parties had the same kind of luck at a second test on the C. Louks farm. In Hanover Township, they have a duster at a test on the Thomas Fleming farm.

In Section 8, Enoch Township, Noble County, the Cain-Devoll Oil & Gas Co. has a duster in the Buell Run sand at No. 9 on the L. H. Devoll farm. In Section 1, Marietta Township, Washington County, P. G. Nuhfer is drilling a test on the John Bosel farm. In Section 10, Sutton Township, Meigs County, the Pure Oil Co. is drilling another test on the Krider heirs farm. In Section 33, Pleasant Township, Perry County, the Allegheny Oil Co. is drilling on the Thomas and Mary Monahan farm.

In the northeast quarter of Section 18, Prairie Township, Holmes County, the Pure Oil Co. drilled its second test on the Margaret Miller farm through the Clinton sand and showing for a 4 or 5-bbl. pumper. The A. H. Heisey Co. has drilled through the Berea grit in its test on the Lewis Martin farm, in Section 5, Harrison Township, Licking County. It is a duster. In Section 4, Madison Township, W. W. and A. T. Wehrle have a near duster in the Berea grit at a second test on the C. Louks farm. In Section 9, Franklin Township, J. T. Bebout's test on the Edward Disbennett farm, is not good for more than 2 bbls. a day in the Berea grit. In the northeast quarter of Section 17, Rush Creek Township, Fairfield County, A. O. Hufford & Co. have completed in the Gordon sand a second test on the George W. Graff farm. It is a duster at a total depth of 2,640 feet. In the northwest quarter of Section 21, Jackson Township, Knox County, the Margget Oil Co. drilled a test on the C. H. Davidson farm through the Berea grit and good for 5 bbls. a day.

Leo Dimmerling & Co. have a very light gasser in the stray sand at a test on the Joseph Sommerlie farm, in the southeast quarter of Section 33, Stock Township, Noble County. In the east half of Section 24, Colerain Township, Belmont County, the Carnegie Oil & Gas Co.'s No. 3 on the Hardesty heirs' farm, is good for 10 bbls. a day in the Berea grit.

Light Pumper in Harrison

In the northeast quarter of Section 17, Monroe Township, Harrison County, John C. Arthurs and others have completed a second test on the Lee Patterson farm and not good for more than 1 bbl. a day. In the northwest quarter of Section 21, Franklin Township, Monroe County, the Marion Oil Co. has completed and shot in the Big Injun sand a second test on the W. W. Marks farm. It is also good for 1 bbl. a day.

In the Fisher Pool, Athens Township, Athens County, Clark & Co.'s test on the Ray Radford farm, is a very light gasser in the Berea grit. In the southeast quarter of Section 1, Cross Creek Township, Jefferson County, Robertson & Co. have a dry hole in the Berea grit at a test on the Samuel McCullough farm. In Lot 15, Hopewell Township, Muskingum County, the Mideast Oil Co. has the rig completed for a test on the W. D. Porter farm, located 2,000 feet northeast of the test on the G. L. Starker farm gas well. In the same township, the Carter Oil Co. has started to drill a second test on the Lydia A. Mercer farm.

Located in Sutton Township, Meigs County, Creel Bros. & Co. have completed in the Berea grit a test on the Dana Cross farm. It is good for 200,000 feet of gas and about 3 bbls. of oil a day. In the same township, the Ohio Fuel Supply Co.'s No. 4 on the Jasper Jidiven farm, is a gasser in the first Cow Run sand, good for 2,500,000 feet of gas. The same company is drilling a test on the Frank Potts farm. The Carter Oil Co.'s on the W. G. Nease farm is a fair gasser in the Berea grit.

In Washington Township, Hocking County, a number of wells are drilling in the sand. In Section 14, the Ohio Fuel Supply Co. is due at No. 3 on the Anna O'Donnell farm In Section 13, the Preston Oil Co. is due at tests on the W. W. Marks and Gertrude and W. H. Rauber farms The Carter Oil Co. has a rig up on the W. H. Mercer farm and unknown parties have rigs up for tests on the W. R. Thrush and C. W. Riggs farms.

In Section 15, Perry Township, Coshocton County, the Preston Oil Co. is swabbing 85 bbls. a day from its Clinton sand test on the Ray VanWinkle farm. This well was drilled in last week with an initial production of 110 bbls. In the northeast quarter of Section 12, Hopewell Township, Muskingum County, the Carter Oil Co. has drilled its test on the J. Brown farm through the Clinton sand and dry. In Section 28, Harrison Township, Perry County, the Pure Oil Co. is due in the sand at a test on the Conway heirs' farm. In Bearfield Township, the Ohio Oil Co. is drilling at 3,625 feet at a test on the C. B. Driggs farm.

In Section 13, Liberty district, Washington County, Ernest Epler & Co. have completed a second test on the Hugh Kine farm. It is a duster in the stray sand. In Section 11, same township, located 450 feet southwest of the test on the C. M. Howell farm, Burke and others have completed a test on the Lillie Johnson farm. It is a light gasser in the Big Injun sand.

Morgan and Meigs Counties

In the southwest quarter of Section 25, York Township, Morgan County, the Pure Oil Co. has drilled a test on the B. A. Baringer farm through the Berea grit. The well produced 20 bbls. the first 24 hours after shot. In Lot 292, Sutton Township, Meigs County, the Ohio Fuel Supply Co. has completed in the Berea grit a test on the Frank Potts farm. It is a light gasser. In Lot 74, Athens Township, Athens County, Bickel & Co. are drilling another test on the George C. Lawson farm.

The Ohio Fuel Supply Co.'s No. 3 on the Charles Trimmer farm, located in the northeast quarter of Section 36, Coal Township, Perry County, and not good for more than 9 bbls. a day. It also has considerable gas.

In the southwest quarter of Section 20, York Township, Morgan County, the Carter Oil Co.'s second test on the Elizabeth Floyd farm, is a light gasser in the Berea grit. In Section 25, Meigs County, at a second test on the Joseph Jividen farm, W. N. Hovis has a 5-bbl. pumper in the Berea grit.

West Virginia Completions

The West Virginia fields completed one fair producer. It is the Virginian Gasoline & Oil Co.'s No. 7 on the, J. B. Caston 220 acres, located in the new Big Injun sand development in Henry district, Clay County. It is estimated to be good for 25 bbls. This is about the average size of the wells in this district and the producing area of the pool has not been defined. In fact, it is the only good looking producing territory under development at this time in West Virginia.

In Jefferson district, Pleasants County, the Hope Construction & Refining Co.'s test on the D. R. Dunn farm has now been drilled through the Squaw sand and is a good gasser in this formation. In Mannington district, Marion County, R. S. Monroe & Co. drilled their old Big Injun sand on the Koen farm 10 feet deeper and developed an oil producer good for 15 bbls. a day.

In Sardis district, Harrison County, the Philadelphia Oil Co. has now completed and shot in the Gordon sand a test on the George Davisson farm and good for from 3 to 5 bbls. a day. On Green Creek, Harper district, Roane County, the Green Creek Oil Co. has the rig completed for a test on the William Fields farm. In Union district, Tyler County, O. H. Hays and others are building a rig on the Christy heirs' farm.

The South Penn Oil Co. has completed in the Berea grit No. 10 on the L. M. Newbanks farm, in Union District, Wood County, and not good for more than 2 bbls. a day. This location is 1,000 feet south of No. 9 on the same farm. On Jakes run, Clay district, Monogalia County, the Hope Natural Gas Co.'s test on the Etta May Hill farm, is a gasser in the fifth sand at a total depth of 3,172 feet. In Center district, Wetzel County, the Hope Construction & Refining Co. has drilled down from the Big Injun sand to the Gordon, an old Big Injun sand gasser and is now good for 10 bbls. a day in the lower formation.

In Central district, Doddridge County, the Hope Construction & Refining Co. has a gasser in the Maxon sand at No. 9, on the V. O. Ellifritt farm. In Union district, Ritchie County, the Pittsburgh & West Virginia Gas Co.'s test on the J. M. Simpson farm is a duster in the Big Injun sand. The same company is due in the Big Injun sand at a test on the Everett Sheets farm.

In Kermit district, Mingo County, the Pilgrim Oil & Gas Co. has drilled to a depth of 3,560 feet at a test on the Lewis Dempsey farm. At this time they are fishing for a string of tools. In Sherman district, Boone County, the Dennison Oil & Gas Co. is drilling a test on the Irwin Sutphin farm. The same company has started to drill a test on the J. and W. Coon farm. On Laurel Run, DeKalb district, Gilmer County, the Star Producing Co. has started to drill a second test on the Harriett Gainer farm.

In rounding out the week of development work the West Virginia fields completed quite a number of wells and nearly all small gas wells. In Carroll district, Lincoln County, the Columbia Gas & Electric Co.'s test on the C. C. Roberts farm is a gasser in the Berea grit. Located in Jefferson district, the Cambridge Gas Co. got one of the same kind at a second test on the Henry Linville farm. The Hope Construction & Refining Co.'s test on the Pell farm, in Center district, Calhoun County, is a gasser in the Big Injun sand. In the same district, the same company's test on the Lottie McEndree farm is a gasser in the same formation.

The Hope Natural Gas Co.'s test on the Parcy-Collins farm, in Center district, Gilmer County, is a gasser in the Big Injun sand. In Birch district, Braxton County, the Ohio Fuel Oil Co. has a gasser in the same formation at a test on the W. H. Campbell farm. The Carter Oil Co.'s second test on the J. W. McDade farm, in Spencer district, Roane County, is a gasser in the Big Injun sand. In Reedy district, Roane County, the Heck Oil Co. has a 20-bbl. producer in the Berea grit on the Stewart heirs' farm. The same company completed a test on the J. W. Carson farm and has a gasser in the Berea grit.

Tyler County

In McElroy district, Tyler County, the Hope Construction & Refining Co.'s test on the H. Merritt farm, drilled down from the Big Injun to the Gordon sand, is a gasser in the lower formation. In Union district, the Carter Oil Co. has a gasser in the Big Injun sand at a test on the J. T. Hugus farm. In Center district, Wetzel County, the Manufacturers Light & Heat Co.'s test on the E. E. Moore farm is not good for more than 2 bbls. a day in the Gordon sand. In Church district, the Carnegie Gas Co.'s second

(Continued on Page 108)

ENGINES

Built to an exceptionally high standard but built in such numbers that they now sell for but very little more than the cheapest.

The Lone Star Gas Company is now installing 43 more Cooper type 80 gas engines in their different Texas fields. This company bought the first single acting Cooper Gas Engines ever built. Now after trying out, for comparison, the most recent designs of other builders they continue to use Coopers.

THE C. & G. COOPER COMPANY
MT. VERNON, OHIO
1605 Kirby Bldg., Dallas 504 Kennedy Bldg., Tulsa
317 Bank of Italy Bldg., Los Angeles

Fields of the Central West

By Whit

New work and much leasing along Lake Shore in Ottawa County, Ohio. Much activity in Trenton Rock area in Eastern Indiana. Allendale Pool in Illinois most consistent of the Wabash County Pools, with good wells and small dry hole percentage.

FINDLAY, Ohio., Nov. 30.—Thirty-six completions were reported for the week from the division of the Central West Field, north of the Ohio River, of which 21 were oil producers with a flush of 1,486 bbls., 9 dry holes and 6 gas wells, while a total of 26 old wells were reported abandoned after producing for many years. The big new production comes from the big completions in the Allendale Field in Wabash Township, Wabash County, Illinois, otherwise the production would be very light compared with previous weeks.

The completed work was done in the various fields as follows:

Field—	Comp.	Oil Wells	Prod.	Dry	Gas	Abd.
Lima	10	7	93	2	1	13
Indiana	6	5	85	1	0	12
Illinois	11	7	1,257	4	0	1
Central Ohio	9	2	51	2	5	0
Total	36	21	1,486	9	6	26

Conditions throughout the old Lima Field of northwestern Ohio have changed but little, although the cold weather prevailing may help to put the mud highways in shape so that material can be moved to new locations. Work has been dragging on account of the excessive rains the past few weeks, although this gave the well owner the opportunity to get the old strippers that have been pumping for years in shape to withstand the winter season.

Only 10 completions are reported from the Lima Field for the past week. 2 of them being dry holes, 1 a gas well, the other 7 showing a flush of but 93 bbls. The best completion was that of the Wittmer property trustee's No. 2 on the northwest corner of the John Zimmerman No. 2 farm, northwest quarter of Section 15, Cynthian Township, Shelby County, the flush being 45 bbls. In the same township, the Maul Oil Co.'s test, northwest corner of the A. Walfrom farm, southeast quarter of Section 36, is a fair-sized gas well and will help materially to strengthen the volume of gas in the new pipe line, which is now getting in shape to furnish gas for fuel to New Bremen, Minster and other towns in the southern part of Auglaize County and the northern part of Shelby County.

In Ottawa County, in the Elmore Field, in Harris Township, the Ohio Oil Co.'s No. 5, northwest corner of the John H. Meyers farm, Section 19, struck top of Trenton sand at 1,267 feet and drilled 93 feet in to a total depth of 1,260 feet, the well showing a first 24 hours gauge of 18 bbls. Same company is drilling a second test on the A. F. Allen farm, Section 19, same township, and Jake Smith is drilling No. 2 Amelia Kuhlman, Section 11. In Catawba Township, in the extreme eastern part of this county, the Underwood Oil & Gas Co. is drilling No. 1 John Lauden, Section 26, between Port Clinton and Lakeside, along the Lake Drive on Catawba Island. This is the second wildcat venture to be made in that area, the first well having started at 23 bbls. This territory is over 15 miles east of the supposed eastern limit of the Trenton Rock Field. The closest production to the producing well on Catawba Island is to the southwest of Oak Harbor, although in Benton Township, same county, some years ago a pool was opened near the town of Limestone, north of Rocky Ridge, northwest of Oak Harbor, and near the south shore of Lake Erie, which in those days were looked upon as the ends of the field.

Middle Bass Island, in Lake Erie, to the northeast of Port Clinton, back in the middle of the '90's, had a small Trenton Rock well, and almost directly east from the recent well on Catawba Island, across Sandusky Bay, on the then Kuebler Brewery property in the western portion of the city of Sandusky, a 2-bbl. well was found, also in the Trenton, but the territory has never been given a fair test. During the past few weeks a large amount of leasing has been done between the Elmore Field in the southern part of Ottawa County, and located on the Portage River, west some 4 miles from Oak Harbor, and eastward to Catawba Island, and some leasing is being done in the entire eastern part of the county.

East of Toledo, in Jerusalem Township, Lucas County, south of Lake Erie, the Ohio Oil Co. is drilling No. 18 on the R. H. and M. A. Eck farm, Section 33. In Oregon Township, same county, Fred Keister has abandoned old No. 6 on the Jame McPhillips farm, Section 25.

In Jackson Township, Seneca County, the Jerry Oil Co. is drilling an outside test on the Philena Flack farm, Section 2.

In Union Township, Mercer County, Michael Harly and others' No. 23 Daniel Davis, Section 11, is credited with 3 bbls. Top of the Trenton was found at 1,199 feet and was drilled 42 feet in.

In Jackson Township, Sandusky County, the Paul Oil Co.'s test in the northwest corner of the G. Wilhelm farm, southwest quarter of Section 3, is credited with 7 bbls., top of Trenton at 1,331 feet, and oil at 1,362 feet. In Scott Township, same county, Lewis D. Bowe has abandoned Nos. 1, 2, 4, 5, 7, 8, 9, 10 and 11 on the M. J. Bowe 40 acres, Section 29. These wells were drilled more than 25 years ago. In Woodville Township, same county, Gustave Magsig is drilling No. 27 on his own farm, Section 26, and Charles F. Zeising and others are drilling a test on the Herman Linke farm in Section 18. In Madison Township, the Paul Oil Co. is drilling a second test on the C. P. Paul farm, Section 15.

In Hancock County, in Biglick Township, the River Cave Gas & Oil Syndicate is drilling a test on the L. Wanders farm, Section 35. In Orange Township, the Ohio Oil Co. is drilling No. 14 W. W. Eaton farm, Section 8. The same company is drilling No. 14 on the J. E. Huntington farm, Section 23, Allen Township. In Eagle Township, R. T. Rittenhouse is drilling a test on the Fred Freed farm, Section 6, while Star & Clark have a rig up for No. 8 Alice Stauffer farm, same section. In Liberty Township, the West End Oil Co. is drilling No. 2 on the J. K. Wheeler farm, Section 32, and Star & Clark are drilling No. 2 on the Jane Wheeler farm, same section.

In Liberty Township, Wood County, the Ohio Oil Co.'s No. 29 J. R. Arter farm, Section 35, pumped 8 bbls. Top of Trenton at 1,158 feet and drilled to 1,408 feet. The Sun Oil Co.'s No. 15 C. Potter farm, Section 15, same township, is reported a duster, while the Vanlue Oil Co. abandoned No. 1 on the Kate L. Case farm, Section 8. In Portage Township, the Ohio Oil Co.'s No. 32 Henry H. Myers, Section 31, is a 2-bbl. pumper. In the same township, F. Lee Rouse drilled a duster at No. 11 Mary D. Coffinberry farm, Section 11.

In Henry Township, Wood County, the Ohio Oil Co.'s No. 3 P. J. Shovelin, better known as the Andrew Fellers farm, southwest quarter of Section 9, pumped 10 bbls., with top of sand at 1,290 feet and 198 feet in. Same company abandoned old Nos. 6 and 27 on the M. Auverter farm, Section 11. In Middleton Township, the Waterville Gas & Oil Co. is drilling No. 7 on the John Davis farm, in River Tract 51. In Troy Township, George W. Hoffman is drilling No. 7 W. and H. Hartman, Secton 12. In Lake Township, Lantz, Schultz and others are drilling No. 2 on the Mrs. Hattie Krummell, Section 26. In Plain Township, near Bowling Green, Schiedt, Hamman & Huston are drilling No. 4 Harley Avery farm, Section 22.

Indiana Field

Some good commercial producers are being found in the old Trenton Rock Field in eastern Indiana. In Jefferson Township, Adams County, George S. Lacknett's second well on the W. F. Johnson farm, Section 4, pumped 30 bbls. and No. 3 is drilling. In Wabash Township, same county, M. S. Daugherty and others' No. 2 J. C. Steiner, Section 13, pumped 20 bbls., while the Chicago Oil Co.'s No. 1 Armstrong heirs, Section 35, pumped 10 bbls. In Penn Township, same county, A. M. Jones drilled a dry hole in a second attempt on the Lenora Gemmill farm, Section 22.

In Bear Creek Township, Jay County, the National Supply Co.'s No. 2 on the Susan Black farm, Section 24, is reported good for 20 bbls., while Heeter & Daugherty's No. 10 H. Armontrout, Section 4, showed 5 bbls. Hunt and Ainsley abandoned old Nos. 1, 2, 3 and 4 B. C. Macy farm, Section 10, and have a rig for a test on the J. Butcher farm, Section 3.

In Delaware Township, Delaware County, the DeSoto Oil Syndicate & Houke are drilling No. 9 J. W. Goings heirs farm, Section 16.

In Turman Township, Sullivan County, J. F. Bolinger and others' No. 1 W. W. Harris farm, Section 2, pumped 3 bbls., and their No. 4 W. D. Harris, same section, is drilling.

In Madison Township, Pike County, in the Princeton district, the Murphy Oil Co. of Pennsylvania abandoned Nos. 3, 4 and 5 C. C. Duffy, Section 36; No. 2 Mary E. Sutton, same section, and No. 6 Sam T. Rimble farm, Section 1.

In Harrison Township, Knox County, the Intuck Oil Co. abandoned Nos. 1 and 2 W. E. Harrison, Section 30, and No. 1 George Like, Section 19.

Illinois Field

Just at this time the Allendale Field in Wabash Township, Wabash County, Illinois, is the most attractive pool of any spot in the Central West Field, owing to its large producers. Its three known producing sands also help out materially in making it a prominent spot to operate in. From about 1911 up to the opening of the new Stillwell Pool, to the east and north of Allendale, the field was regarded as spotted. This pool looks like it would prove the best yet found in the county. It is not a deep sand proposition, the pay being from 1,300 to 1,350 feet. Great caution must be taken in drilling wells, for should they go any great depth into the sand, an abundance of salt water may be encountered, as already two very promising wells entered the water vein and were abandoned for protection to the other wells producing from the same sand. One of these wells was the Wabash Oil Co.'s No. 2 S. J. Stillwell farm, Section 1, and the other was drilled by Joe S. Young, Jr., and

(Continued on Page 112)

Kentucky-Tennessee

By Vern T. Whitney

BOWLING GREEN, Ky., Nov. 30.—Three good completions in Cumberland County and a 75-bbl. starter in Allen County featured the week's new work in the Kentucky territory.

Reid, McClintock & Heckathorne's No. 2 Hughes, at the head of Pulsey Creek, in Cumberland County, made 100 bbls. naturally from a sand encountered at 235 feet below the Pencil Cave. This well serves to prove that a new pool has been opened 3½ miles east of production at Kettle Creek and 3 miles south of the Sulphur Creek Pool. The first test on this tract, completed early in the year, is still a good pumper from the same sand as No. 2.

The Paragon Development Co. has finished laying a line from Peytonsburg to the Hughes farm, a distance of 3 miles, which is bound to be the forerunner of a number of tests along its route.

In the Kettle Creek district, the Gartland estate's well on the Maude Blythe tract, offsetting the big well of E. D. C. Lynch on the Cain tract, which came in recently and caught fire, is flowing 180 bbls. per day naturally from the second Sunnybrook sand at 474 feet. In the same vicinity, McClintock and others' No. 5 Bud Kerr, the discovery lease of the Kettle Creek Pool, is pumping 20 bbls. at 150 feet below the Pencil Cave.

The recent large completions in Cumberland County, three of which have opened new territory, have stimulated interest, and it is the common thought of many of the operators in that district that Cumberland County will get a good play from now on.

Allen County's Flowing Well

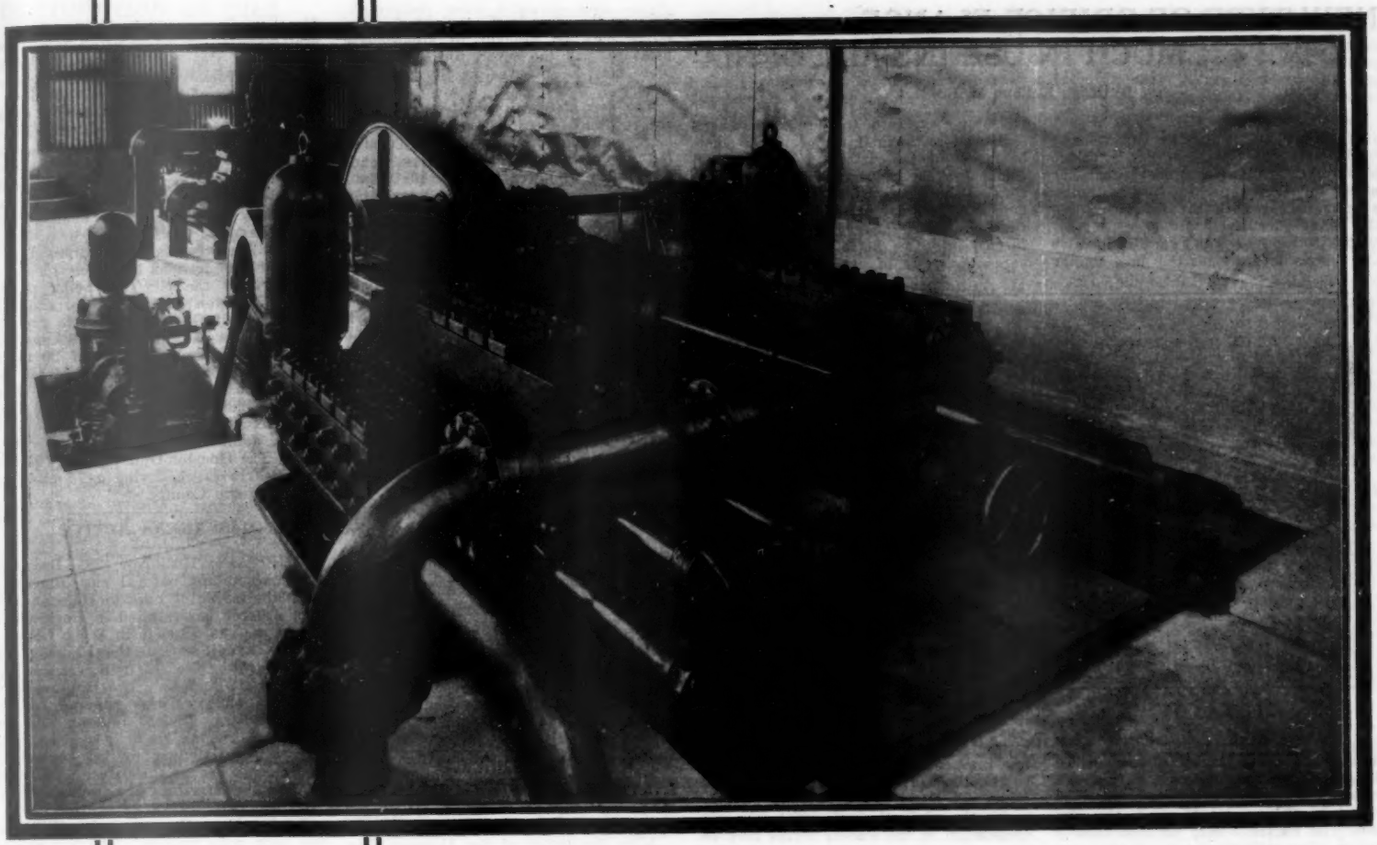
For the first time in over two years a flowing well has been drilled in the Sledge Pool, on Bay's Fork Creek, in western Allen County, on the east line of Warren. It is No. 11 on the Pearson tract, which was recently purchased by J. F. Wuerth from the South Penn Oil Syndicate. The first two days after it was drilled to 280 feet, one foot in the sand, it flowed at intervals at the rate of 75 bbls. daily. In this section of Allen County and immediately across the county line in Warren, a large number of wells were drilled in 1919 which showed small production, outside of a few scattered leases. The production is obtained from two sands, one immediately below the shale and the other at about 50 feet below the shale.

Barren County

Nine completions, increasing the daily production in Barren County 82 bbls., shows the steady development that is still going on in that district. For the past 18 months this county has led the entire State in the number of weekly completions, as well as staying ahead of the other counties in active drilling operations.

The best well of the week is again credited to the Consolidated Gas Co., whose No. 10 on the Depp place, in the Beaver Creek Pool, north of Glasgow, came in making 20 bbls. initial at 480

(Continued on Page 100)



In the Sinclair Pipe Line Company's station at Wewoka, Oklahoma. A 15,000-barrel forged steel Prescott Pipe Line Pump.

Used by the leaders~ Prescott Menominee pipe line pumps

A CATALOG of users of Prescott-Menominee pumps reads like a rating list of the leaders in the oil industry. These leaders in the industry want certain things in their equipment for pumping service, and they have the world to choose from. It is significant that Prescott-Menominee pumps are the choice.

This choice is but natural, however, for Prescott-Menominee field pumps and main line pumps are specialized products designed for this class of service. They have been built to meet the particularly severe conditions in the oil fields, and to do it easily. Ample margins of safety are provided; they take high pressures, overloads, the heavy work of continuous running, and they keep on smoothly, quietly, and with surprising economy.

If you want these features in your pumping service, our engineers can help you get them. Find out why the leaders use Prescott-Menominee pumps.

PRESCOTT MENOMINEE

THE PRESCOTT COMPANY
Menominee, Michigan
Fred. M. Prescott, President

O&GJ-12-3E-RTG

NATURAL GAS DEVELOPMENTS

NEW TYPE OF ORIFICE FLANGE MUCH IN USE IN CALIFORNIA

By F. L. Kallam, M. E.

LOS ANGELES, Cal., Nov. 28.—A very recent and important improvement in the measuring of natural gas by orifice meter is the Robinson orifice fitting. The merits of this apparatus are mutually appreciated by both the field man and the plant executive.

This fitting resembles an ordinary valve and flanges into the gas line in a similar manner. When so installed, aside from serving in the capacity of an orifice flange, it furnishes in itself a complete by-pass, whereby the orifice may be changed without interrupting the gas flow. In Figure 1 may be seen such a

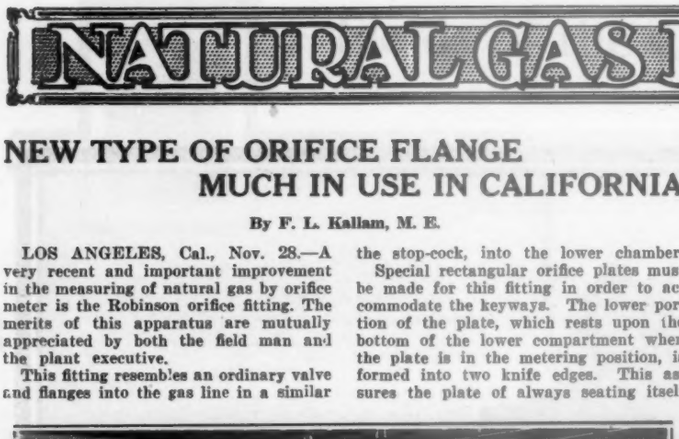


Figure 1

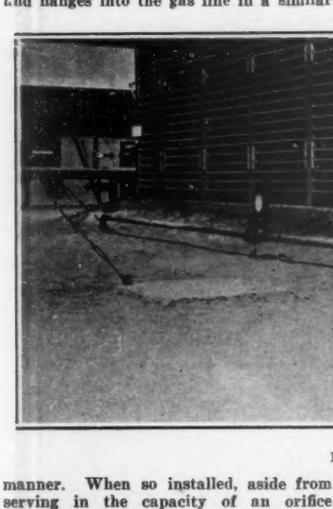


Figure 2

set-up, showing the simplicity of the meter manifold, and the absence of all valves and cumbersome by-pass piping so common with the usual orifice meter settings.

From Figure 2 it is readily seen that the fitting consists of two chambers, the lower of which always forms an integral part of the gas line. The upper chamber, however, may or may not be, placed in direct communication with the lower by the proper setting of the slotted brass stop-cock, located between the two compartments.

To facilitate the centering of the orifice plate in the center of the line, two continuous keyways are cut in the sides of both the upper and lower chambers. Thus by introducing the plate into the upper chamber (through the latter's removable top) it is possible to slide it down by means of the keyways, through the stop-cock, into the lower chamber.

Special rectangular orifice plates must be made for this fitting in order to accommodate the keyways. The lower portion of the plate, which rests upon the bottom of the lower compartment when the plate is in the metering position, is formed into two knife edges. This assures the plate of always seating itself correctly and results in bringing the orifice into correct central with reference to the line. It might be noted in this connection that a tap is provided directly under the plate through which any accumulation in the seating recess may be blown out. A stud is also provided directly under the plate which can be used in lifting the plate off of its seat should sticking occur. For removing the plate from one compartment to the other a ¼-inch rod is used. This rod screws into the top of the plate and passes through the packing gland in the cover to the top chamber.

With the above details in mind, it will now be in order to see how the orifice plate in this device may be changed without interrupting the gas flow. By turning the stop-cock to such a position that its slot forms a part of both chambers, the removing rod may be secured into the orifice plate, and the latter pulled up through the cock into the upper chamber. This chamber is now under line pressure. Turning the stop-cock further (through 90 degrees) effectively seals off the two chambers. By loosening the bolts on the cover to the top chamber the latter may be brought to atmospheric pressure, and the cover, rod and orifice plate may be removed as illustrated in Figure 3.

Figure 3

The new plate can now be screwed on the rod and placed in the top compartment and the cover resecured. Turning the stop-cock another 90 degrees makes it possible to lower the new plate into the line. Here it is retained in position by four setscrews manipulated from the exterior of the fitting. This holds the ground side of the plate tightly into the keyways, and prevents gas leakage around the plate without the aid of the customary gaskets. The removal rod is now unscrewed from the plate and withdrawn into the upper chamber. Closing the stop-cock leaves the plate in the metering position.

Houston's "Gas War" Goes Forward a Step; A Contract Approved

HOUSTON, Tex., Nov. 28.—The city council approved the contract entered into by the Houston Gulf Gas Co. and the Houston Gas & Fuel Co. providing for the furnishing of natural gas to Houston.

When the council met the city secretary read a letter from Mayor Holcombe recommending approval of the contract. The mayor stated that all things being equal he would have preferred the Houston Pipe Line Co., but this company "had not shown the inclination to do business in a hurry and had not met the demands and requirements like the Gulf Co. had."

The contract is an excellent one and is fair to the citizens and to the local company, the mayor declared. It passed unanimously without discussion.

After the letter of the Houston Gas & Fuel Co. and the contracts had been read by City Manager Claude Belk, the reading consuming an hour and a half, expressions from citizens present were asked by Mayor Holcombe. He made it clear that after the council acted there would be no opportunity for discussion and that the council wanted to hear from the citizenship.

Wants to Know Rate

J. S. Cullinan suggested that it seemed proper that the rate to be charged the public should be made known before the contract was signed, and J. W. Hall made the same suggestion.

It was pointed out by Mayor Holcombe that it would be impossible to fix the rates until the Houston Gas & Fuel Co. had made its contract agreement. He explained that the council's approval did not make the deal final, that under the terms of the agreement the directors of each company must within 15 days ratify the contract before it became binding.

Captain James A. Baker, president of the Houston Gas & Fuel Co., also spoke, and declared that his company had dealt fairly with both pipe line companies, and had decided upon the Houston Gulf Gas Co. because it felt a better deal could be made with that concern.

"Understand me, though," he declared, "the door is still open, to permit the Houston Pipe Line Co. to come to us with a better offer if it can, until the contract is finally ratified."

The Houston Natural Gas Co. has applied to the city commissioners of this city for a franchise to supply domestic and industrial consumers with natural gas. The incorporators are directors and officers of the Houston Oil Co., which in turn owns the Houston Pipe Line Co., a subsidiary organized for the purpose of drilling for gas and transporting the same to consumers.

The charter names the incorporators as E. H. Buckner, president of the Houston Oil Co. of Texas; T. M. Kennerly, vice president and attorney; McDonald Meachum, lawyer; C. B. McKinney, general manager of the Houston Pipe Line Co., all of this city; George Mackubin and L. S. Zimmerman, Baltimore bankers and directors of the Houston Oil Co.

The application is the result of a so-called "gas war," which has interested citizens of south Texas generally for several months. At present Houston citizens are supplied with artificial gas by the Houston Gas & Fuel Co., a subsidiary of a large eastern holding company handling public service utilities. The local gas company has approximately 26,000 connections in the city, a large territory in the city not being piped.

The Houston Pipe Line Co. and the Houston-Gulf Gas Co. offered to furnish the local company with natural gas for distribution, naming a rate of 30 cents and 31 cents per 1,000 cubic feet for domestic consumption. The Houston Pipe Line Co. has a line from the Live Oak and Refugio County fields to the city limits, a distance of approximately 200 miles. The Houston-Gulf Gas Co. (Moody and Seagraves) is laying a 75-mile line from Refugio County.

GAS AREAS ACTIVE

HOUSTON, Tex., Nov. 28.—Broadening markets for natural gas coincident with the laying of lines to Houston and San Antonio has resulted in much activity in the gas districts in Webb County. In the Bruni section, the Houston Oil Co. is drilling No. 11, with derricks up for Nos. 12 and 13. The Houston-Gulf Gas Co. has two rigs running in the Caroline-Texas Field. Johnson and De Tray are rigging to drill a deep test. Snowden & McSweeney set casing to test a sand around 2,130 feet. Ball and others are starting five wells in the Aviator Pool.

In Jim Hogg County, O. W. Williams has four wells drilling. The Simms Oil Co. set casing in No. 1 in the Randado district around 1,260 feet, and the Magnolia Petroleum Co. set casing in No. 2 around 2,068 feet.

The United North and South Oil Co., electrifying its leases in the Luling Field, has two units completed. It is expected to have the plant in operation in about one month.

The Houston Power & Electric Co. is stringing a high tension line to Humble from Houston, a distance of 20 miles. Producers in that pool will install electric pumping equipment. Many of the leases in the West Columbia, Goose Creek, South Liberty, Hull, Sour Lake, Orange and Vinton (La.) pools are now being electrically pumped. The power is carried on high tension wires from Houston, Beaumont and Orange plants, although the Gulf Production Co. and Humble Oil & Refining Co. have installed their own electric plants, and in some cases furnish electricity to independent producers.

LAYING BIG LINE IN OHIO

ST. MARYS, O., Nov. 28.—A hundred or more men are employed by the Ohio Fuel Gas Co. of Columbus, Ohio, laying an 8-inch line from the Darke County, Ohio, Field to the villages of Ft. Laramie, Minster and New Bremen, the latter two towns in Auglaize County. Eight weeks is the approximate time for finishing the project according to an unofficial statement.

Depths ranging to 12 feet are reached on some stretches of the new line. Thirty-four inches is the reputed minimum depth underground. Three crews are employed.

The distribution lines in New Bremen are being laid inside the curb line in order not to interfere with the paved street surface. New Bremen and Minster for several years have gone without natural gas. Ft. Laramie never had natural gas.

EQUIPMENT AND SUPPLIES

DEHYDRATION OF OILS BY FILTRATION METHOD

By J. W. McKenzie

The dehydration of crude oil emulsions is being accomplished by many different methods. Oils from different fields vary so greatly that sometimes one process and sometimes another seems best suited for individual problems.

One of the simplest and most positive methods of breaking emulsions which is being used in several widely different oils is by filtration. This consists essentially in passing an emulsified oil through a specially prepared bed of treated diatomaceous earth (Celite).

This emulsion breaking method has been employed in California for more than two years. The effectiveness of the method employed is indicated by the fact that the finished oil gives a total cut of under 1 per cent and usually under one-half of 1 per cent.

The average operating cost per barrel on California type crude ranges from 1 to 3 cents, which includes labor, material, depreciation, interest and royalty. The difference in cost is governed by the daily capacity of the plant.

The following is a typical installation of the Celite process at Santa Fe Springs, Calif., the procedure followed and results obtained on two cycles:

1. Precoating. Cloths used were double filled duck which was new on the next to the last run and was neither washed nor brushed for the last run, being merely cleaned by shaking off the cake. Clean oil was used for precoating and 210 pounds of Hyflo Super-Cel (a special grade of Celite) was used on the first run and 295 pounds on the second run, giving a 6-ounce and an 8-ounce coat respectively, there being 580 square feet of filter area.

Total time of precoating was 30 minutes, Super-Cel being added in 15 minutes. Initial pressure was from 16 to 18 pounds, which built up to 20 pounds and a 4½-pound back pressure was maintained by throttling return valve. Pressure was backed down to 12 pounds before admitting wet oil.

2. Operation. Wet oil was admitted at about 12 pounds pressure with nearly cold oil which was reduced to 8 pounds when temperature rose to 180 degrees Fahrenheit. The valve was opened so as to keep flow at about the well production, which was 1,500 bbls.; and the back pressure due to oil in separating tank was about 2.5 pounds.

The temperature was held at 180 to 200 degrees Fahrenheit.

Gas bleeders at back of press were cracked enough to relieve any gas pockets and gas line to top of tank from front of press was kept wide open.

Temperature was controlled by hand, the thermocouple being disconnected on this press. Pressure was allowed to take natural rise unless rate fell down too rapidly.

3. Patching press. Pressure was allowed to rise to 40 pounds before patching. Press was steamed and gassed for one hour each and then clean precoat oil circulated, to which 25 pounds of Super-Cel was added. Oil was admitted as in precoating, except the pressure was kept at about well pressure. The patch pressure was from 16 to 20 pounds with a 4½-pound back pressure.

4. Cleaning press. The pressure was allowed to go to 60 pounds after the first wash, and then the press was cleaned. It was steamed and hot gassed for an hour and a half each, and then the cake was shaken off so that the cloths were ready to be re-used and the press closed. At this plant they figure the life of the cloths is 50 days or two runs.

5. Oil treatment before going to press. The wet oil from wells was sent to a 2,000-bbl. tank with a top overflow. Here some of the free water was bled out. The overflow went to a heated tank, in which the oil was held at 120 degrees Fahrenheit with a swing pipe set at about 8 feet. The oil treated was cutting from 8 to 12 per cent emulsion. It was a mixture of oil from 18 pumping wells.

6. Results of two runs. The first run was made for a period of 24 days with only one patch before shutting down at 60 pounds pressure. Cuts were all good and patch was put on only because of high pressure. The total put through was 35,201 bbls. of net oil in 24 days.

PRINCIPLES OF DIESEL ENGINES ARE COMPARED

In a new bulletin entitled, "Comparison of Diesel Engine Principles," Fairbanks, Morse & Co. of Chicago have produced a piece of technical sales literature which should be of more than ordinary interest to anyone who is considering Diesel engine power.

This bulletin, of 32 pages, analyzes the various factors which influence the design of Diesel engines. These factors are then interpreted in terms of what they mean to the Diesel engine user in over-all operating economy, simplicity in operation, low upkeep, long life and dependability.

After many years of experience in the building of 4-cycle gas engines, Fairbanks, Morse & Co. adopted the 2-cycle principle in building oil engines. The bulletin claims many distinct advantages such as mechanical and operating simplicity and the various points are illustrated and described in detail.

Another phase of the Diesel engine design which is covered is the subject of airless and air injection of the fuel. The two-stage scheme of combustion which is used in all Fairbanks-Morse Diesels is also discussed. The factors which influence the horsepower rating of a Diesel engine are covered in a chapter on "Dissipation of Heat."

This bulletin is somewhat of a departure from the usual type of sales literature in that it treats a highly technical subject in a comprehensive way, so that it can be understood by one who has not had an opportunity to make a detailed study of Diesel engines.

The bulletin will be sent without charge on request to the company at their Chicago office.

SEAMLESS TUBE FIRM OPENS HOUSTON OFFICE

HOUSTON, Tex., Nov. 28. — The American Seamless Tube Co. has opened an office and warehouse in Houston, with James Tucker as general agent. Mr. Tucker was connected with the National Supply of Texas for 19 years. The Houston branch will cater to the industry in Texas, Louisiana, the Mid-Continent fields and Mexico.

The American Seamless Tube Co. was organized to handle the tubular products of 19 mills located in Belgium, France and the Ruhr Valley. The headquarters are in New York. A. J. Carr, formerly with the Lucey Manufacturing Co., is vice president, located in California. Tubular goods are being shipped by water to Houston, Tex., and San Pedro, Cal., and thence inland by rail.

The tubular goods are manufactured by what is known as the Mannesmann process, differing greatly from the process used in mills in the United States. The casing is manufactured in lengths of 28 to 35 feet, instead of the normal 16 to 20 feet lengths. The seamless casing has, it is claimed, 40 per cent greater tensile strength than lapweld of the same size and weight and has greater resistance to collapsing pressure than welded casing on account of the increased tensile strength.

The seamless casing is tested and inspected in accordance with proposed American Petroleum Institute specifications by R. W. Hunt & Co., engineers, and each joint stamped before it is accepted.

It is said the seamless casing is being used extensively for setting in deep holes in the California fields, the long lengths having technical and economical advantages.

Mr. Tucker has opened an office in the West Building, Houston, with a temporary warehouse on Harrisburg Boulevard.

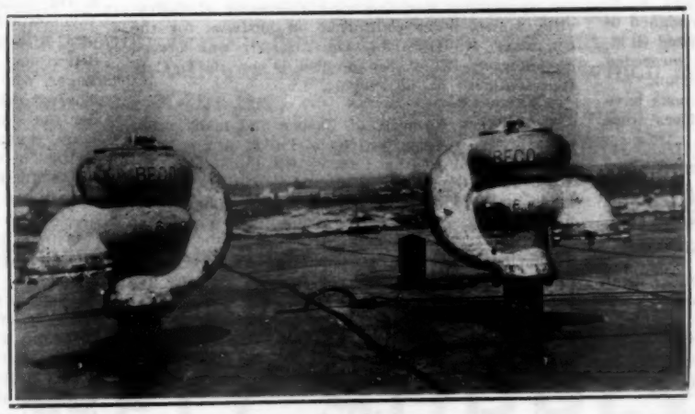
NEW TANK VENT VALVE MADE IN CALIFORNIA

A new tank vent valve, the result of nine months of intensive developing and testing, representing the very latest and most efficient type offered to the industry, is now being place on the market by the Brooks Engineering Corp., conservation and fire prevention engineers of Los Angeles, Calif., according to an announcement by Stephen H. Brooks, president of the company.

The entire valve is made of aluminum throughout, the valve discs are a spun aluminum sheet and seat in a mercury seal, making them absolutely gas tight at all times and under all conditions. These valves, it is claimed, have been given thorough field tests by several of the largest oil companies on the Pacific Coast, resulting in their adoption as standard for all light oil tankage.

A standing offer has been made by the Brooks Engineering Corp. to furnish any legitimate company with a valve of any size which it may wish for a 60-day or 90-day test for trial and if found satisfactory to be retained, but if not found to be all that the company claims for it, to be returned at the manufacturer's expense.

The efficiency or capacity of flow of these valves is said by the manufacturers to be around 90 per cent on tests or considerably higher, it is claimed, than other makes of valves. These valves can also be furnished to operate at any required pressure or vacuum from one-twentieth of an ounce up.



Two valves on large tank in California.

FARRELL-CHEEK TELLS AN ILLUSTRATED STORY

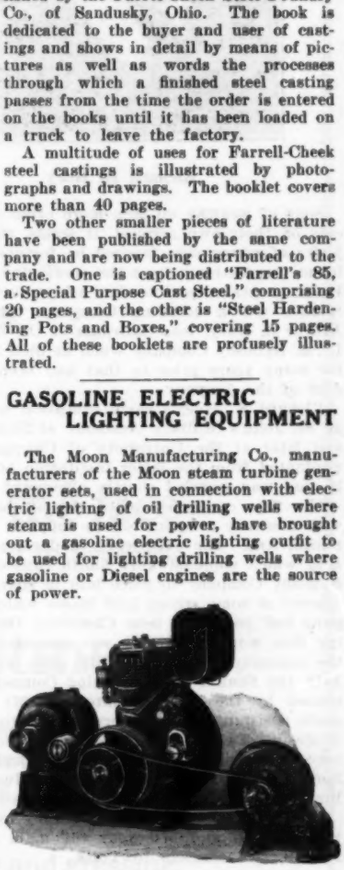
"The Illustrated Story" is the name of an interesting and illuminating booklet of elaborate design which has been published by the Farrel-Cheek Steel Foundry Co., of Sandusky, Ohio. The book is dedicated to the buyer and user of castings and shows in detail by means of pictures as well as words the processes through which a finished steel casting passes from the time the order is entered on the books until it has been loaded on a truck to leave the factory.

A multitude of uses for Farrell-Cheek steel castings is illustrated by photographs and drawings. The booklet covers more than 40 pages.

Two other smaller pieces of literature have been published by the same company and are now being distributed to the trade. One is captioned "Farrell's 85, a Special Purpose Cast Steel," comprising 20 pages, and the other is "Steel Hardening Pots and Boxes," covering 15 pages. All of these booklets are profusely illustrated.

GASOLINE ELECTRIC LIGHTING EQUIPMENT

The Moon Manufacturing Co., manufacturers of the Moon steam turbine generator sets, used in connection with electric lighting of oil drilling wells where steam is used for power, have brought out a gasoline electric lighting outfit to be used for lighting drilling wells where gasoline or Diesel engines are the source of power.



In the Eastern Fields the necessity of using gas or oil engines for drilling is becoming more general due to the high price of fuel. In the West and Southwest, annual water shortages have caused operators to lean to the internal combustion engine. The new lighting plant that the Moon Manufacturing Co. has brought out to provide light for these drilling wells comprises a 5-horsepower air-cooled engine belted to one of its standard, ball-bearing oil country generators of 1½-kilowatt capacity, 110 volt. An idler is used to permit close belt centers which permits the removal of the belt in the daytime and the entire 5-horsepower engine is available for the operating of pumps or any other auxiliary apparatus. The engine is equipped with a shaft extension, permitting the application of an extra pulley to which a blower supplying air to the forge can be belted, there being sufficient power in the engine to handle both the blower and the generator at one time.

These plants have been thoroughly tested out and are now ready for the market. The company's Bulletin No. 7 describes this plant in detail.

MEN KNOWN IN OILDOM

Richard K. Huey

Sons of wealthy oil men more often achieve success on their own account, it seems, than the majority of young men favored by fortune. Yet that in no way detracts from the credit due Richard K. Huey, general superintendent of production for the Shaffer Oil & Refining Company, whose father, Arthur S. Huey, was chairman of the board of the H. M. Byllesby Company when he died in 1924, and for many years prior to that had been vice president of the company.

Richard K. Huey's early education was obtained at St. John's Military Academy at Delafield, Wis., and later at the University of Chicago. He was graduated from the latter institution at the age of 20 and was married shortly afterward.

His first connection with the oil business was with a utility company which supplied gas to Fort Smith, Ark. His experience in developing the gas field which supplied Fort Smith caused the H. M. Byllesby Company to place him in charge of development of some school land leases which that company had purchased near Cleveland, Okla. Following that work, Mr. Huey was placed in charge of the company's Oklahoma City office and when, in 1918, the Shaffer Oil & Refining Company was purchased by the Byllesby interests, Mr. Huey was made assistant to the general superintendent, E. E. Simpson. Two years later Mr. Simpson resigned to become superintendent of the newly organized Oklahoma Eastern Oil Company and Mr. Huey succeeded him as general superintendent of production.

Since that time all of the Byllesby interests have been merged and last year the main offices were moved from Chicago to Tulsa.

PERSONAL PARAGRAPHS

C. W. Lynch, rig contractor, of Perry, Okla., spent a few days last week in Tulsa on business.

* * *

Mr. and Mrs. Thomas McCort have returned to Petrolia, Ont., after two years in the Trinidad oil fields.

* * *

C. W. Morrison, counsel for the Tide Water Pipe Company of Bradford, Pa., paid a business visit to Columbus, Ohio, last week.

* * *

Fred Deacon has returned to Petrolia, Ont., after spending the summer drilling for Imperial Oil, Ltd., in the Fort Norman Field.

* * *

J. D. Tidball, district manager of the International Derrick & Equipment Company of Columbus, has moved his headquarters from Casper, Wyo., to Denver. The company still maintains a warehouse and stock at Casper for the fields about there.

G. A. Thompson, purchaser for the Empire Companies, with headquarters at Bartlesville, Okla., returned recently from a short trip to Mexico.

* * *

C. H. Keyes, president of the Keyes Oil Corporation, has moved his headquarters from Scottsville, Ky., to Glasgow, Ky., where his concern expects to do considerable development work.

* * *

Robert Wright, assistant purchasing agent for the Cortez-Aquada Oil Company of Tampico, Mexico, was a recent Tulsa visitor. It was his first visit to the States in more than five years.

* * *

Hugh Trimble, general sales manager for the National Supply Company, with headquarters in Toledo, Ohio, spent a couple of weeks in Tulsa recently on his annual pre-inventory trip of inspection.

* * *

Mr. and Mrs. Edward Carrothers, of Tulsa, Okla., are visiting the parents of Mrs. Carrothers in Toledo, Ohio, as well as many friends. They were formerly residents of Toledo where Mr. Carrothers was for many years in the oil game.

* * *

T. C. Sherwood, geologist, who was formerly connected with the Waite Phillips Company in the Tulsa office, left that concern last week to head the sub-surface department of the Phillips Petroleum Company at Bartlesville, Okla.

* * *

Professor James Horne, attached to the University of Colorado at Boulder in shale oil investigations, is spending several days at the laboratory of the Western Minerals Company in Denver examining the reaction of shale oil with the new reagent for refining oils.

* * *

D. C. Calhoun of Alexandria, La., after spending several days looking over the Hopwell Field in southern Adair County, Kentucky, has closed a contract with the Wood-Haislett Company to drill a well on part of the Morgan farm, south of Hopwell Church.

* * *

A. W. Ambrose, general manager of oil production for the Empire Gas & Fuel Company, and Keith Clevenger, of the public relations department of the same company, were in Wichita Falls, Tex., the past week on business connected with the Empire interests.

* * *

Peter Lee Brown, auditor for the Continental Supply Company, with headquarters at St. Louis, Mo., and R. C. Hunter, auditor for the Frick-Lindsay Company, with headquarters at Pittsburgh, Pa., are in Bowling Green, Ky., looking over the books of the concerns they represent.

* * *

Douglas R. Brown, vice president of the Oil Country Specialties Manufacturing Company, of Coffeyville, Kans., is in California on business for the company. H. R. Shidel, who formerly was located at Coffeyville, Kans., for the firm, is now the O. C. S. representative at Shreveport, La.

* * *

T. J. West, formerly of Casper and many other oil centers, is now located in Tulsa, where he is superintendent of the Pulaski Oil Company. Mr. West was interested in the pioneer drilling of many fields in Wyoming and his many friends here wish him the best of luck in the southern country.

* * *

Charles R. Johnson, chief executive of the Cities Service Oil Company, Ltd., of Toronto, Canada, has been transferred to the Crew Livick Company at Philadelphia, Pa. When he left to assume his new duties his fellow workers presented him with a leather club bag which was presented by Thomas J. Spellman, his successor as head of the Canadian firm.

* * *

Dr. M. P. Cullinan, president of the Border Gas Company of Laredo, Tex., was in Houston recently on a business mission and meeting old friends. He had just completed an automobile tour, driving through from Laredo to the New Jersey coast, accompanied by Mrs. Cullinan. They visited the Pennsylvania and Ohio oil regions, where the doctor was active in professional and business life before coming to Texas, with the opening of the Corsicana Fields. Dr. Cullinan forsook medicine and surgery many years ago for the oil and gas field and is considered an expert on natural gas.

A. J. Byles, president of the Tidal Oil Company, New York City, recently completed an inspection trip to his company's properties in the Texas Panhandle and West Texas, accompanied by other officials of the Tidal Company. Following the trip a business conference was held in the Fort Worth offices of the company.

* * *

E. W. Moore, president of the Independent Oil & Gas Company of Tulsa; A. W. Dustin, chief geologist of the company; Wade H. James, vice president, and A. E. Woodard, head of the land department, have been kept on the jump lately and are just about the busiest set of officers in the Mid-Continent. They spent most of last week in the Independent's Texas office at Fort Worth.

* * *

Joe Cook, well-known oil man and former driller and field man, went through Casper, Wyo., last week on his way to Thermopolis from Denver. Mr. Cook is of the opinion that the oil men are making a mistake drilling in wells in that region with the holes loaded with fluid to keep in the pressure and will shortly test the theory by drilling in the deep test in the Fort Collins Field without any holding fluid in the hole.

* * *

Michael J. Roach, mayor-elect of North Baltimore, Wood County, Ohio, served in that job several years ago. At that time he was declared the largest mayor in Ohio. He is 6 feet 3 inches tall and weighs 300 pounds. Mr. Roach is a retired pipe liner, having been with the Buckeye Pipe Line Company from the time that company started handling oil in the Lima Field until his retirement and is well known among the old-timers in the oil game.

* * *

Roy D. Gwynne, former purchasing agent for a large Mid-Continent oil company and who also served as president of the Purchasing Agents' Association of Tulsa, has been made district manager of Joseph Greenspon's Sons Iron & Steel Company, in charge of the Mid-Continent territory. Mr. Gwynne succeeds Jacob Greenspon, who will take charge of the Breckenridge and Ranger districts in Texas with headquarters at Breckenridge.

* * *

Thomas P. McDonald, formerly auditor of the Oklahoma Corporation Commission, has been employed in the auditing department of the Southwestern Gas & Fuel Company, of Oklahoma City. The company's gas operations are principally in the western part of the State. It is soon to be distributing gas in Altus, where a franchise was secured. It purchases Sayre Field gas from the Oklahoma Public Service Company, which recently completed a pipe line to Mangum from the Sayre Field.

* * *

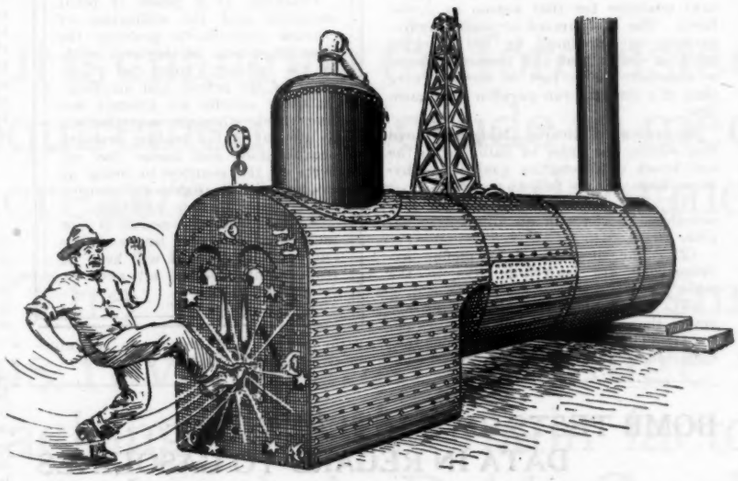
The Oklahoma office of the Texas & Pacific Coal & Oil Company of Texas, has been moved from Wynnewood to Oklahoma City, and is in charge of J. B. Kennedy, who is superintendent of the land department. The geological staff is headed by C. E. Yager, who was transferred from the Texas office. The company's refinery at Wynnewood remains under the supervision of the Texas office. The company contemplates an expansion of drilling activities in Oklahoma. It is now drilling a well in the Braman Field in Kay County, and has production in the Robberson, Bristow and Ada Fields.

* * *

William B. Sutton, assistant superintendent of the land department of the Prairie Oil & Gas Company during the past eight years, with headquarters at Tulsa, has resigned to become head of the land department of the Vacuum Oil Company in which position he will have charge of all leasing activities in the States of Louisiana and Texas. His resignation is to become effective December 31, when he will join the Vacuum organization and establish his headquarters at Houston, Tex. Mr. Sutton's oil experience dates from 1901 when he entered the service of the Chautauqua Oil & Gas Company in southern Kansas as production and land manager. This concern was purchased by the Prairie Oil & Gas Company in 1917 and Mr. Sutton went with it. In October of 1920, during the Texas oil boom, he was sent to Eastland, Tex., to establish a land office there, and in October of 1923 was promoted to the position which he has just resigned. His many friends throughout the Mid-Continent fields wish him abundant success although his Tulsa associates are sorry to see him leave the Oil Capital.

"OILWELL" ESTD 1862 TRADE MARK

Stop



You are Kicking Your Boiler square in the face

if you allow scale accumulation to insulate the metal and cause it to overheat

Give Your Boiler Royal Treatment

Royal Treatment is put into the boiler in liquid form with the feed water, and, by its mechanical action, breaks down the scale and forms a protective film on the boiler metal. Scale will not adhere to boiler metal which has been "Royal Treated." No analysis of the feed water is necessary.

You protect your other machinery against wear by frequent oiling and greasing. Why not give your boiler the same chance?

Boiler repair expense and the added cost and annoyance of delays and shut-downs can be avoided by using Royal Treatment.

Inquire at any of our 100 Branches

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

(Manufactured and Guaranteed by the Three-M Manufacturing Co., Kansas City, Mo.)

Straight Run Versus Cracked Gasoline

Comparative Tests in An Automotive Engine Show Superiority of Latter. Properties of Several Types and Grades of Gasoline Explained

By Gustav Egloff
Research Laboratories, Universal Oil Products Co., Chicago, Ill.

One of the most important problems in the oil industry today is the production of anti-knock motor fuels. Normal straight run gasolines produced from the major oil fields of the United States develop the familiar knocking sound in an automotive engine when laboring on hills, with wide open throttle.

For many years it has been believed that straight run gasolines from paraffin base or semi-asphaltic base oils were superior motor fuels. However, since the advent of the successful commercial cracking of heavy oils into cracked gasoline this position is no longer tenable, for the cracking reaction can be so controlled that anti-knock motor fuels are produced of superior qualities to straight run gasoline. The cracking of heavy oils under heat and pressure is of such flexibility that increased percentages of olefine, napthene and aromatic hydrocarbons can be produced at will and these hydrocarbons give the anti-knock properties to cracked gasoline.

The detonation or knocking of an automotive engine under service conditions is by far the most important factor in its power output and efficiency. The knocking induces not alone a loss of power, but is also highly annoying to the driver of an automotive engine. With a smooth burning gasoline, it is apparently a fact that the power output is directly proportional to the compression ratio of the engine. Expressed in another way, if a motor fuel produces 15 miles per gallon of gasoline consumed, with a compression ratio of 4 to 1 and if the compression ratio be doubled the miles per gallon of gasoline would rise approximately to 30, or 100 per cent increase. However, this does not hold when the motor detonates or knocks. The efficiency of the motor drops very rapidly when the gasoline starts knocking in the cylinder. This knocking of the motor is due to the type of hydrocarbons in the motor fuel, which detonates under the operating pressure of the cylinder instead of burning quietly. Burning yields power and efficiency.

The most serious difficulty in a motor fuel is the heavier paraffin hydrocarbons, for when they are vaporized with air, detonation occurs with an explosion velocity far beyond that of the normal burning wave. The high velocity of explosion yields a hammer blow in the automotive cylinder instead of giving propulsive power. The high explosion wave gives rise to the familiar sound of knocking in the everyday motor when operating under low speeds, and when climbing hills. As the cylinder pressure of an automotive engine is raised the knocking tendency of paraffin gasoline increases to a point that makes it unsatisfactory as a motor fuel, due to the high vibration of the motor and power loss.

The bulk of the straight run gasoline produced in the United States is of paraffin characteristics, and hence, as a function of their chemical constitution they are knocking or detonating gasolines. The average Mid-Continent, Pennsylvania, Kentucky and other oil fields, yield gasolines of high paraffin hydrocarbon content.

The napthene hydrocarbons present in gasoline are those derived from California, Texas, Smackover and elsewhere, and they have anti-knock properties which give them greater utility in automotive engines over the paraffin motor fuels.

The aromatic series of hydrocarbons are present in many crude oils in small percentages increasing in California, Texas, Smackover, Java, Borneo and other petroleum oils. The aromatic hydrocarbons are the best anti-knock compounds derivable from crude oils.

Anti-Knock Qualities

The unsaturated or olefine hydrocarbons in straight run gasoline from crude oils are not present in more than small percentages. The unsaturated hydrocarbons of the olefine series are excellent anti-knock compounds, and have important qualities for that reason as motor fuels. The unsaturated or olefine hydrocarbons are produced by the cracking reaction under heat and pressure, hence, a superior motor fuel is derived over that of a straight run paraffin type gasoline.

According to Ricardo, **Midgeley, Boyd** and others, the order of value as to the anti-knock or detonating qualities of hydrocarbons are as follows:

(1). The paraffin hydrocarbons are notorious knockers in an automotive engine.

(2). The unsaturated or olefine hydrocarbons are materially less in the scale.

(3). The napthene hydrocarbons are better than the paraffin or unsaturated.

(4). The aromatic hydrocarbons are nondetonating under any compression ratio of practical service in an automotive engine.

SEVERAL ARTICLES

The accompanying discussion by Dr. Egloff is one of several appearing in the November 26 and December 3 issues of The Oil and Gas Journal on the general subject of cracking.

Cracking, as a phase of plant operation and the utilization of cracked products, is probably the most important development within the industry from the standpoint of the refiner and marketer. In these articles an attempt has been made through contributions by several of the leading research organizations and motor fuel experts in the country to bring up to date the available information concerned with this problem.

A great deal of research is now under way and later issues of The Oil and Gas Journal will keep its readers informed of all new developments.

BOMB TESTS GIVE INTERESTING DATA IN REGARD TO GASOLINES

The following bomb tests on straight-run gasoline and cracked gasoline from the same crude were carried out under the direction of Professor E. H. Leslie and Professor G. G. Brown, Chemical Engineering Department of the University of Michigan, with their writeup and conclusions as to the relative values of the gasolines tested.

Six gasolines were tested, three straight run from the crudes and three made by the Dubbs Cracking Process. These constituted three pairs of fuels, that is, for each straight-run fuel there was a corresponding cracked fuel made from fuel oil or gas oil from the same crude.

The characteristics of the six gasolines are shown in Table A.

TABLE A

Gasoline No.:	1 Straight run from mixture of Tonkawa, Healdton, Covington and Burman crudes.	1A Cracking of fuel oil residuum from same crude as No. 1.	3 Straight run from Bristow, Cromwell and Cushing crudes.	3A Cracking of 80% topped crude and 20% gas oil from same crude as No. 3.	7 Straight run from Somerset, Texas and Luling crudes.	7A Cracking of fuel oil residuum from same crudes as No. 7.
Source of Gasoline—						
Sp. Gr. 60/60°F.	0.7389	0.7463	.7474	.7459	.7513	.7444
A. P. I.° 60/60°F.	60.0	58.1	57.8	58.2	56.8	58.6
I. B. P.	97°	107°F.	128°F.	105°F.	134°F.	119°F.
5 per cent	139	142	173	144	184	158
10 per cent	159	162	193	166	204	179
20 per cent	193	199	217	200	230	208
30 per cent	217	230	238	233	251	232
40 per cent	238	261	258	262	273	256
50 per cent	260	286	280	287	293	277
60 per cent	282	308	302	311	315	295
70 per cent	308	333	325	335	337	315
80 per cent	334	361	349	360	358	337
90 per cent	380	389	376	386	383	365
95 per cent	415	411	398	404	400	388
End point	440	438	420	418	420	415
Recovery	98.0%	98.0%	98.5%	98.0%	98.5%	98.0%
Loss	1.0%	1.0%	0.5%	0.5%	0.5%	1.0%

Determining Anti-Knock

The combustion characteristics of the gasolines were determined by explosion of fuel-oxygen-nitrogen mixtures in a bomb specially designed for this purpose and equipped with pressure-element and photographic device for the recording of pressure-time curves. The apparatus as used, except for minor modifications, has been described by Brown, Leslie and Hunn.*

*Ind. Eng. Chem. 17 (1925) pp. 397-402.

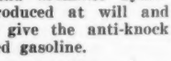
The determination of the anti-knock characteristics is based on finding the proportion of nitrogen necessarily added to a given gasoline-oxygen mixture to prevent the formation of peaks on the pressure-time curve. This method has been developed by Brown and Leslie in the Chemical Engineering Laboratories at the University of Michigan, and has been found to be of greatest value in comparing the anti-knock properties of gasolines or other motor fuels. By way of parenthetic comment it can also be said that the inherent value of the method has elsewhere been independently confirmed by engine studies in which it was shown that the proportion of inert gas remaining after the burning of the fuel-air charge was the determinative factor as regards knocking.

Bomb Method Described

The essentials of the bomb method are as follows: An exact weight of gasoline is charged into the bomb, which is then closed, and oxygen from a pressure cyl-

(Continued on Page 91)

The paraffin hydrocarbons are straight chain compounds composed of hydrogen and carbon. They have the maximum percentage of hydrogen in relation to the carbon content of the molecule. The chemical constitution of the paraffin hydrocarbons is of such character that when chemically combining with air under pressure, the tendency is to explode at a high velocity, instead of burning. The paraffin hydrocarbon series are also termed saturated hydrocarbons, meaning thereby that the carbon atoms in the molecule have the maximum possible number of hydrogen atoms combined chemically with the carbon. The chemical formula is represented as $C_n H_{2n} + 2$.



Hexane C_6H_{14}

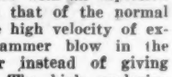
Paraffin Hydrocarbons

Name—	Formula	Spec. Grav. 15.5°C	Boil. Pt. °C
n pentane	C_5H_{12}	.6327	36.3
n hexane	C_6H_{14}	.6630	68.95
n heptane	C_7H_{16}	.6864	98.43
n octane	C_8H_{18}	.6971	125.8
n nonane	C_9H_{20}	.7201	149.5
n decane	$C_{10}H_{22}$	.7327	172.
n undecane	$C_{11}H_{24}$	.7434	194.
n dodecane	$C_{12}H_{26}$	.7533	214.

Unsaturated Hydrocarbons

The olefine or unsaturated hydrocarbon series are straight chain compounds having a chemical constitution different from the paraffins. The unsaturated hydrocarbons when combining with air under pressure, have a strong tendency to burn slowly, rather than explode violently. The olefine or unsaturated hydrocarbons have two less hydrogen atoms for the same number of carbon atoms when compared to the paraffin hydrocarbons of the same number of carbon atoms.

In an automotive engine, the olefine series of hydrocarbons have a tendency to burn slowly with air under pressure, and so modifies combustion in the motor, that there is no knocking. The unsaturated hydrocarbons are not present as such in straight run gasoline to any material extent, but are produced by the cracking reaction under heat and pressure; and therefore have greater utility than the paraffin hydrocarbons, normally present in straight run gasoline. The chemical formula of the olefines is represented as C_nH_{2n}



Hexene C_6H_{12}

Olefine Hydrocarbons
(Unsaturated)

	Spec. Grav. 15.5°C	Boil. Point 760 mm
Pentene	0.6558	31°C
Hexene	0.6869	60°C
Heptene	0.6999	98
Octene	0.7235	124
Nonylene	0.7526	149
Decene	0.7588	172
Undecylene		189
Duodecylene	0.7882	213
Tridecylene		233

Napthene Hydrocarbons

The napthene hydrocarbons are cyclic or ring structured hydrocarbons in contra-distinction to the straight chained paraffin and olefine hydrocarbons. The napthene hydrocarbons are anti-knock or nondetonating in their properties, burning with slow combustion in an automotive engine, therefore, yielding greater power in an automotive engine than when using a paraffin type gasoline.

The napthene hydrocarbons are saturated cyclic compounds with the maximum percentage of hydrogen possible for the carbon atoms to hold. Percentagely the napthenes have the same quantity of hydrogen to the carbon atom as the unsaturated or olefine hydrocarbons. Yet, the napthenes are profoundly different in their chemical activity compared to

(Continued on Page 92)

will hereafter be the largest resources for this purpose

It is changing the forecasts of requirements of crude to meet increasing gasoline demands

The main factor causing this revolutionary change is cracking, and the main factor in cracking is the Dubbs Cracking Process

Universal Oil Products Company
Owners of the Dubbs Process
310 South Michigan Ave
Chicago, Illinois

Public Attitude Toward Motor Fuels

Opposition to Cracked Gasoline Due to Ignorance Regarding Its Constituency. Other Synthetic Products Commonly Used

By O. C. Smith
Chief Technologist, Refinery Division, Graver Corporation

There is an idea current among the jobbers, retailers and the general public that "cracked" or synthetic gasoline is an inferior motor fuel. This idea has been brought about by three principal factors. First, the name "cracked" implies an inferior product to the average man; second, undue criticism of synthetic gasoline; third, the poor grade of synthetic gasoline as put on the market in the earlier days of cracking.

It is to be lamented that the word "cracked" gasoline was ever popularly applied as the name of the product made by the pyrogenic treatment of heavy petroleum products. The very name "cracked" itself gives to the average person the idea that the gasoline is about one-half burnt up. He thinks that something has been broken and that it is necessarily not as good as that obtained naturally from the crude. This of course is not true.

We are using synthetic products in every walk of life and nobody thinks anything about it. In prehistoric days the women combed their hair with the backbone of a fish. This we will call a straight run comb. But today none of the ladies, we believe, would be satisfied to have a fish bone lying on her dressing table with which to comb her hair. They prefer the synthetic comb made of bakelite, a synthetic resin or pyralin which is made from cotton. We have today artificial or synthetic pearls which are as beautiful as the natural or straight run pearl. Some of the most beautiful dress goods are made from wood and sold under the trade name of rayon.

In each of these cases, there is a cracking or breaking up of one substance to form a new one. The same thing occurs in the manufacture of synthetic gasoline. It is broken or cracked and changed from one compound into another. It is perfectly easy for some of the people who are so adverse to using synthetic gasoline to get a straight run cane by going into the woods and finding some crooked limb of a tree which would possibly serve them, but most of them would prefer the beautiful synthetic cane, finely polished and finished, with the ornamental handle and gold tip.

Refineries Responsible

This aversion to synthetic gasoline has been fostered and propagated by the refiners themselves. Only a few years ago there were but a very few of the larger companies who manufactured synthetic gasoline. The salesman for the small oil company who did not have a synthetic or cracking process created an adverse opinion for synthetic gasoline as a method of making his sales. It did not make any difference to him how well the gasoline put out by the competitor who had a cracking process worked. He was only interested in giving the impression to the retailer and general public that cracked gasoline was no good. The salesman has preformed this particular work so well that now it is almost impossible to convince the public that a synthetic gasoline is as good or better than the straight run product. In fact, even at the present time, when nearly all companies of any size have synthetic processes, salesmen for those few companies who do not have them are still busily engaged in running down synthetic gasoline, and yet these same companies are planning to install cracking processes in their plants.

Some of the refiners who have cracking processes are endeavoring to keep their customers from knowing that they do manufacture a synthetic gasoline. This we believe is an entirely wrong policy. The cracking still is here to stay, for it is an economic necessity. They should not endeavor in any way to conceal the fact that they are putting out synthetic gasoline, but should advertise it and endeavor to get the general public to realize that a good synthetic gasoline is just as efficient a motor fuel as a good straight run. The refiner in the past built up the prejudice against the synthetic gasoline and it is now his duty, in fact, it is absolutely essential for him to break down these prejudices.

Prejudice Created

The same conditions exist in the natural gasoline industry. The word casinghead was given the gasoline product which was at first obtained only from the casinghead of the well. In earlier days, some unscrupulous jobbers found that they could buy this casinghead gasoline at a low price and put it out as a good motor fuel. Others decided that they could make a little more money by buying kerosene and blending this with their casinghead gasoline. The result was a very inferior product causing imperfect combustion, carbon deposits and crank case dilution. These poor blends created such a prejudice against the name "casinghead" that the industry has not yet lived it down.

Practically no such blends are put on the market at the present time; in fact, it would be almost impossible for anybody to get away with a kerosene and casinghead blend in this day of State inspection. However, the prejudice against casinghead and a blended gasoline still persists and in order to attempt to overcome it, the natural gasoline manufacturers have decided to call their product "Natural Gasoline." It would be well if the refiners would follow their example and drop the name "cracked" and refer to their product as "synthetic" gasoline.

Once Inferior Product

As we said before, a part of the prejudice against synthetic gasoline came from the fact that an inferior product was put on the market in the earlier days. In the beginning of the cracking industry as in all new industries, there was a great deal that was not known about the manufacture of the product. The gasoline first put out had a foul odor and contained a large quantity of compounds which at that time were not considered good for motor fuel. It was usually of a bad color and in many ways was considered inferior to the gasoline obtained directly from the crude oil, but with increased knowledge of the composition of gasoline, with better understanding of what happens in a pressure still, and with more adequate facilities for treating the material, synthetic gasoline as now put out by most of the larger companies is a very high grade product. It is water white, has a pleasant odor and will stand up better than a great many of the straight run gasolines on exposure to the sun.

There is no doubt that some synthetic gasolines are not as good as others, but it must be remembered that there are also poor grades of straight run gasolines. The quality of the crude, method of stilling in the refinery, process of treating, all have an effect on the quality of the finished straight run product. The same factors have a very marked influence on the quality of the synthetic gasoline also, but there is another factor that is more important, and that is the treatment at the pressure stills.

Natural Method

In the manufacture of synthetic gasoline by pyrogenic means, we are carrying out at a much more rapid rate the process that has been going on in nature for countless ages. Down in the earth certain organic compounds have been subjected to heat and pressure and this has caused a gradual changing of these compounds from one form into another. The result is the mixture we call crude oil. This crude oil contains everything from the lightest gasoline to the heaviest asphalts and waxes. In nature the process, very probably, was exceedingly slow. We are duplicating this process in our pressure stills only at a tremendously more rapid rate. We do in a few minutes what it has taken ages to accomplish in nature. The products we obtain from the processes are quite similar to those obtained from the oil well and it is necessary for us to separate the gasoline and the other products from this pressure distillate, as it is called, just the same as with crude oil. There are a number of systems by which this changing of a higher gravity oil into lighter ones is accomplished.

A few of them are the Jenkins, the Burton-Clark, the Dubbs, the Cross, the Holmes-Manley, the Carlton-Ellis, etc. Nearly all of these processes have identically the same method of operation, that is, the oil is heated in tubes under pressure, passed into a chamber, drum or tank of some sort where the carbon deposits and the gasoline are allowed to separate from the rest of the oil. Some

(Continued on Page 98)

INTERESTING TESTS COVERING RELATIVE VALUE OF GASOLINES

By L. M. Fanning

That cracked gasoline is coming to be regarded in an entirely new light as regards its motor fuel value and that its changing status may result in significant developments as regards its manufacture and marketing, is becoming more and more apparent. Research and comprehensive tests have now established that cracked gasoline has definite anti-knock characteristics. Some of the anti-knock gasolines derived from petroleum now being marketed are entirely cracked gasoline. This phase of cracked gasoline is the subject of intensive research work throughout the industry, and the progress thus far made indicates that one of the most significant impending developments in the industry is the further concentration on manufacture of cracked gasoline as a superior fuel possibly commanding a premium over ordinary gasoline.

Ordinary automobile road tests are being conducted regularly throughout the country for the guidance of large purchasers of gasoline. A test conducted recently in the East is typical. The test was made with a popular, medium-priced car, on a hill three-quarters of a mile long with a hairpin turn midway. The road was of uneven surface and was greatly washed out. The speed of the car in approaching the hill was less than 12 miles an hour.

The first run was made with straight-run gasoline of 59.2 gravity, the accepted straight-run article regularly purchased by distributors in this district. At the hairpin turn the speed had reduced to 9 miles, with the engine knocking badly, and it was necessary to change gears. The balance of the hill was made in low gear, with the engine laboring. After the tank had been thoroughly drained, it was filled with 55.4 gravity cracked gasoline made from the same crude. At the hairpin turn the speed had so accelerated that it was necessary to apply brakes to go around the curve. Still in high, the car picked up speed for the balance of the climb and was making 24 miles an hour at the summit. There was no knocking during this test.

A recent laboratory test made by one of the large oil companies comparing the anti-knock qualities of (1) straight-run gasoline, (2) cracked gasoline and (3) composite straight-run and cracked gasolines, showed the superiority of cracked gasoline. The first mentioned gasoline, referred to below as Gasoline No. 1, required the addition of 3 cubic centimeters of pure tetraethyl lead to a gallon to produce standard anti-knock qualities: the second gasoline, Gasoline No. 2, required 1.5 cubic centimeters of lead, and the third gasoline 2.75 cubic centimeters of lead, thus showing the superior anti-knock qualities of cracked gasoline. The test is summarized as follows:

Comparison of Anti-Knock Qualities of Gasolines

Gasoline No. 1 is derived from straight distillation of crude oil. This gasoline has the following tests:

Gravity	60.0
Over	96
10%	168
20	205
30	234
40	262
50	290
60	318
70	337
80	370
90	394
End	426

To produce the same anti-knock qualities as the standard for anti-knock gasoline, this gasoline required the addition of 3 cubic centimeters of pure tetraethyl lead to a gallon.

Gasoline No. 2:

Gravity	53.4
Over	95
10%	167
20	203
30	237
40	267
50	295
60	322
70	352
80	385
90	411
End	437

This gasoline is a straight cracked product containing no straight-run gasoline. It is derived from the cracking of a Mid-Continent gas oil. This gasoline required the addition of 1.5 cubic centimeters of pure tetraethyl lead to the gasoline to meet the standard performance required for an anti-knock motor fuel.

Gasoline No. 3:

Gravity	58.1
Over	90
10%	168
20	205
30	238
40	264
50	286
60	306
70	326
80	350
90	380
End	425

This gasoline is a commercial motor gasoline regularly sold in this country, and is a composite of straight-run and cracked gasoline put out by one of the larger companies. It is the usual mixture marketed by this company as gasoline. This gasoline required the addition of 2.75 cubic centimeters pure tetraethyl lead to the gallon to meet the standard performance which is required for an anti-knock motor fuel.

Vogt
Water Tube Boilers

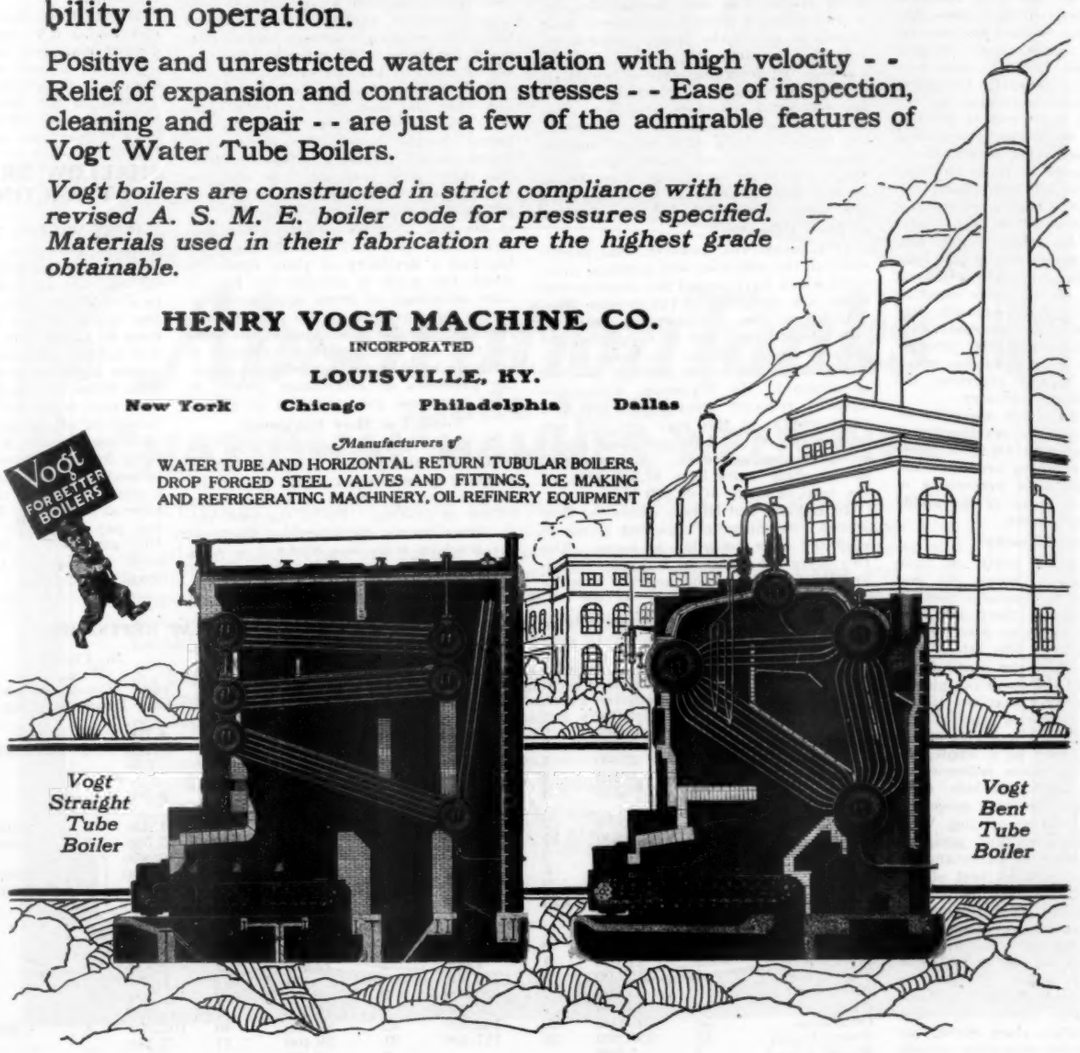
There are two types of Vogt boilers designed to meet the most exacting requirements of high efficiency and flexibility in operation.

Positive and unrestricted water circulation with high velocity - - Relief of expansion and contraction stresses - - Ease of inspection, cleaning and repair - - are just a few of the admirable features of Vogt Water Tube Boilers.

Vogt boilers are constructed in strict compliance with the revised A. S. M. E. boiler code for pressures specified. Materials used in their fabrication are the highest grade obtainable.

HENRY VOGT MACHINE CO.
INCORPORATED
LOUISVILLE, KY.
New York Chicago Philadelphia Dallas

Manufacturers of
WATER TUBE AND HORIZONTAL RETURN TUBULAR BOILERS, DROP FORGED STEEL VALVES AND FITTINGS, ICE MAKING AND REFRIGERATING MACHINERY, OIL REFINERY EQUIPMENT



Refineries With Cracking Survive

Of the 197 Plants Shut Down Only 3 Have Commercial Processes. Those With Cracking Equipment Handle 75 Per Cent of the Crude

By C. O. Willson

A survey of refinery operations in the United States at the present time presents a clear case for cracking as a necessary phase of the operations of the permanent plant. A study of developments during the past two or three years clearly shows that more and more refiners have come to realize that they cannot survive in the manufacturing end of the oil business unless they install equipment which makes possible the maximum recovery of gasoline the most valuable product obtained from crude petroleum in practically all refining areas.

There are in the United States at the present time 575 refineris. Of this number 378 are operating and the remaining 197 shut down. These data are based on The Oil and Gas Journal's 1925 survey of refinery operations, including whatever changes were necessary to bring the survey up to November 1.

Turning first to the 197 refineries which are shut down—in most cases their probable permanent status—we find that only 13 of this number have cracking processes. Of this 13 only three have processes which are generally recognized as being commercial successes the remaining 10 being experimental installations which have up to the present time failed to justify permanent operation.

The crude capacity of these 197 shut down plants is 344,630 bbls. daily. Of this capacity, 319,830 bbls. is represented by the 184 refineries which do not have cracking units. In other words, considered from the standpoint of numbers, 93.4 per cent of the shut down plants at the present time do not have cracking units. Based on crude capacity, the plants without cracking processes have 92.8 per cent of total potential throughput of these shut down refineries which in their present status, represent the failures of the refining industry.

Considering next the 378 operating refineries the case for the cracking processes is just as conclusive. Of those in operation 160 have cracking processes and 218 do not. This is a percentage of 57.4 against 42.6 in favor of the plants without cracking processes.

Based on Capacity

A comparison based solely on numbers, however, fails to reveal the real situation in regard to dominant position of cracking. Although there are only 160 refineries with cracking processes, it happens, as shown in the table, that these plants have 75.5 per cent of the total capacity of all the operating plants. This is due to the fact that practically all of the large refineries east of the Rocky Mountains have cracking processes. For the country as a whole, the average capacity of these refineries is 16,800 bbls. daily and 3,027 bbls. daily for the plants without cracking processes.

Eliminating California or the West Coast from consideration and comparisons further emphasize the importance of cracking. For the territory east of the Rocky Mountains refineries with 81.4 per cent of the capacity of all the operating plants have cracking processes. In other words, four out of every five barrels run to stills is refined at refineries having cracking processes.

In California, development has been slow although a large increase in cracking facilities has taken place during the past year with greater expansion certain for the immediate future. California refiners in the past have not generally installed cracking equipment for two reasons. In the first place, the bulk of the available charging stock produced has been hard to crack and the few installations made did not give the results obtained in other fields. Furthermore, the West Coast furnished an excellent market for fuel oil and the overhead cuts from crude generally used as charging stock. Prices have usually been high when compared to the price of crude and this has held back a more rapid development of cracking units.

Cracking in California

Installations recently completed in the West Coast plants have given more favorable results and it is known that the refineries at which they were installed expect to rapidly increase their cracking equipment. These installations in one instance at least, are cracking practically all the residuum after the gasoline and kerosene cuts are taken. Equally favorable results are obtained where the low gravity crudes are charged direct to the crackers. The recent slump in the fuel oil and distillate prices brought about by the continued heavy production with large stocks will also hasten the day when California refiners will operate their plants to secure the largest possible recovery of gasoline.

From the foregoing data it would, of course, be incorrect to conclude that all the successful refineries have been shut down due to the failure to install cracking facilities. Lack of finances, inability to secure a permanent crude supply, poor location from the standpoint of marketing as well as inefficiency in plant operation are often responsible for the shutting down of refineries.

It is significant, however, that practically all the refineries with cracking processes which have passed the experimental stage, are operating at the present time. Turning to the accompanying table, in this connection, it will be noted that the failures among refiners are least in the States where the largest gasoline recovery is obtained. In Wyoming, where the gasoline recovery from crude the first eight months of this year was 57.7 per cent, eight of the nine operating plants have cracking equipment. Refiners with the cracking units have 97,300 bbls. of the total capacity of 99,300 bbls.

In Indiana and Illinois where the next largest percentage of gasoline is recovered the same situation is found. The two operating plants in Indiana—Standard Oil Co. of Indiana and the Sinclair Refining Co.—with a combined capacity of 70,000 bbls. daily—both have ample cracking equipment. In Illinois plants with 73,500 bbls. daily out of possible total of 74,250 bbls. have cracking units.

Mid-Continent Situation

In the Mid-Continent where installations have spread rapidly during the past two years, the gasoline recovery from crude the first eight months of this year was 42.5 per cent, an increase of almost 3 per cent over the first eight months of 1924. Although, as shown in the table, there are a large number of plants shut down in that territory relatively few of these shut downs occurred during the past year or two. The November report of The Oil and Gas Journal for this territory shows that of the 147 refineries in operation during the past year, 120 were operating November 1. Of the shut down refineries 109 had been shut down over a year. These data unquestionably support the statement that since cracking processes became generally available to all refiners, the number of failures has decreased.

This situation has obtained despite the fact that the past two or three years have been as unfavorable as any similar period in the history for the refiner. Prices on all products, especially gasoline, have been relatively low and the crude market fluctuations have made it difficult for the refiner to gauge the cost of his raw material. Despite this condition the refiner with a cracking process has had a flexibility of plant operation which has made it possible for him to take advantage of every opportunity to secure the maximum return from his operations. Market conditions at the present time are such that the statement is often heard that refiners without cracking processes or lubricating plants, in most instances, are operating at a loss.

Could Use More Equipment

It should not be concluded from the table that the plants listed as having cracking processes have all the equipment needed to secure a maximum recovery of gasoline. Up to the past two or three years the charging stock of the cracking stills was confined to what was generally termed the gas oil cut of the skimming operation, this fraction usually not exceeding 5 per cent of the crude charge at the skimming plant. The cracking capacity at the present time of many plants does not exceed 5 to 10 per cent of the crude skimming capacity. The best available information indicates that at the present time for the country as a whole the cracking capacity does not exceed 750,000 bbls. daily or approximately one-third of the skimming capacity of the same plants.

Based on the operations of those plants which are securing the maximum gasoline recovery, the cracking capacity should at least equal the skimming capacity. Cracking processes are now available, which will handle as charging stock, all the residuum after the gasoline has been skimmed off. As previously explained, a few installations have been made where no skimming stills are operated, the crude being charged direct to the cracking stills.

Due to this constantly widening scope of cracking it is impossible to make any definite statement as to the capacity required to assure maximum plant efficiency. It is probable, however, that expansion in the future will continue to be largely at refineries which already have in operation one or more units.

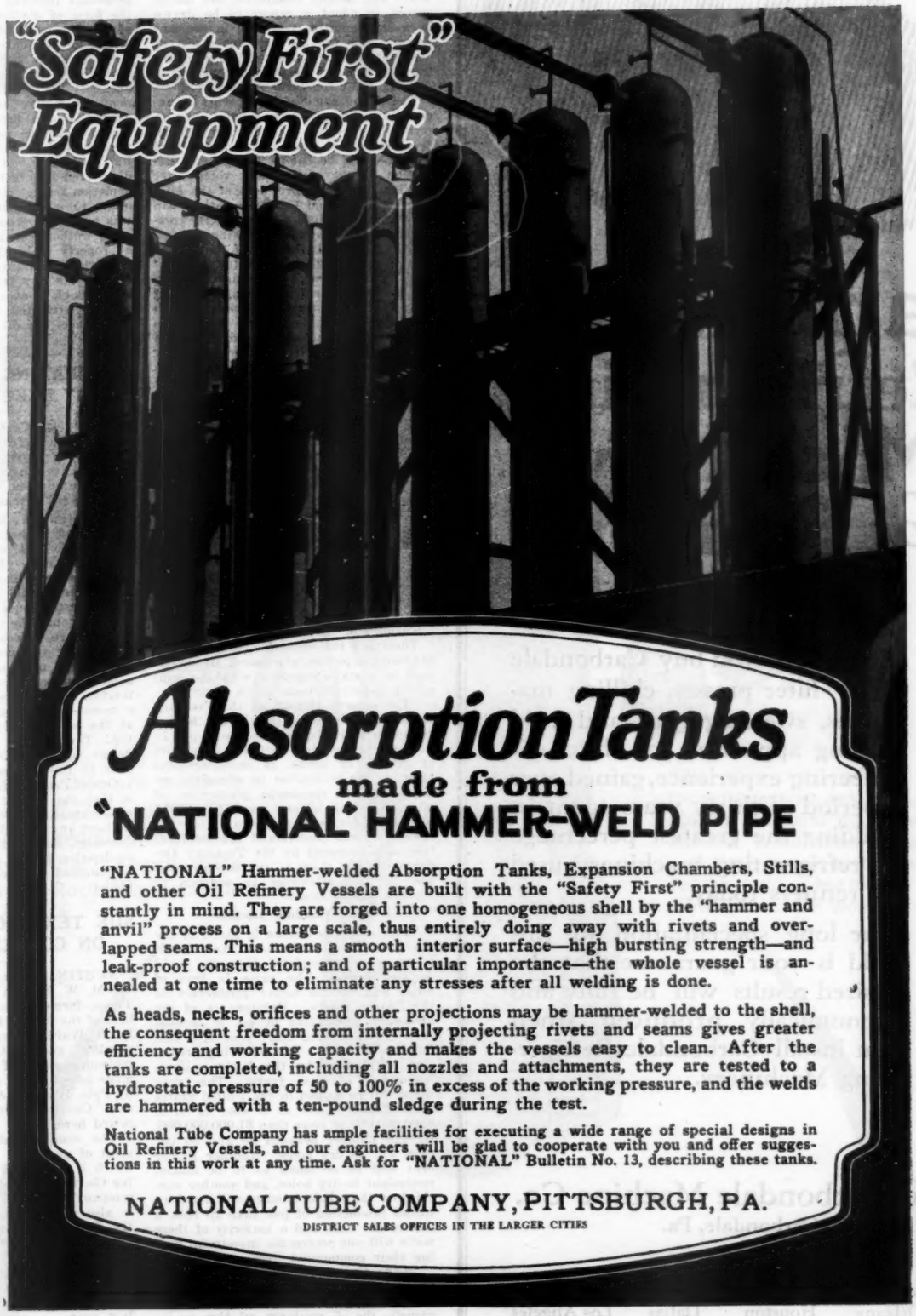
SHALLOW DRILLING IS ATTRACTING ATTENTION

FORT WORTH, Tex., Nov. 28.—Cranfill and associates, of Dallas, together with the Godley Oil Co., are negotiating for the purchase of a one-half interest in a tract of about 200 acres of leases just north of the town of Brownwood from R. Richardson. A shallow well has just recently been brought in on the Richardson farm, good for around 25 to 30 bbls. from the sand at 650 feet.

A new organization is to be formed consisting of Richardson and the people to whom he sold a half interest in his farm for the purpose of developing the property. Present intentions are to drill a number of the shallow wells on the lease at once. The discovery of this shallow pay horizon is attracting considerable attention to the territory immediately surrounding the town of Brownwood.

TABLE SHOWING CRACKING INSTALLATIONS AT REFINERIES

State—	No. of Plants	Crude Capacity	No. Plants With Cracking Process	Crude Capacity	No. Plants Without Cracking Process	Crude Cap.	No. of Plants	Crude Cap.	No. Plants With Crack. Processes	Crude Cap.	No. Plants Without Crack. Processes	Crude Cap.
Arizona	3	2,000	...	.....	3	2,000	...	.....	..	.....	...	.....
Arkansas	9	33,500	6	27,000	3	6,500	10	8,750	..	.....	10	8,750
California	61	707,650	9	415,500	52	292,150	23	48,700	1	3,000	22	45,700
Colorado	2	2,000	1	1,500	1	500	2	750	..	.....	2	750
Georgia	1	5,000	1	5,000	...	.....	...	.....	..	.....	...	.....
Illinois	10	74,250	8	73,500	2	750	5	15,500	..	.....	5	15,500
Iowa	...	.....	...	.....	...	.....	...	.....	..	.....	...	.....
Indiana	2	70,010	2	70,000	...	.....	4	4,800	2	3,100	2	1,700
Kansas	20	121,800	15	113,200	5	8,600	12	15,700	1	1,000	11	14,700
Kentucky	12	21,240	6	18,200	6	3,040	4	1,850	..	.....	4	1,850
Louisiana	14	176,830	5	142,830	9	34,000	14	28,500	2	3,000	12	25,500
Maryland	3	45,000	2	40,000	1	5,000	1	1,200	1	1,200	...	.....
Massachusetts	3	60,000	3	60,000	...	.....	...	.....	..	.....	...	.....
Minnesota	1	1,000	...	.....	1	1,000	...	.....	..	.....	...	.....
Mississippi	1	250	...	.....	1	250	...	.....	..	.....	...	.....
Missouri	3	15,500	3	15,500	...	.....	2	3,500	..	.....	2	3,500
Montana	8	14,100	1	1,500	7	12,600	2	2,300	..	.....	2	2,300
New Jersey	9	245,500	9	245,500	...	.....	2	6,000	..	.....	2	6,000
New York	4	33,500	2	29,000	2	4,500	2	300	..	.....	2	300
Ohio	14	48,500	7	32,000	7	16,500	1	600	..	.....	1	600
Oklahoma	52	249,000	20	162,500	32	86,500	46	103,350	3	8,750	43	94,600
Pennsylvania	53	155,800	22	117,400	31	38,400	11	5,380	..	.....	11	5,380
Rhode Island	1	5,000	...	.....	1	5,000	...	.....	..	.....	...	.....
South Carolina	1	10,000	1	10,000	...	.....	...	.....	..	.....	...	.....
Tennessee	1	125	1	125	...	.....	...	.....	..	.....	...	.....
Texas	72	465,980	23	340,000	49	125,980	50	93,750	2	4,000	48	89,750
Utah	2	4,800	2	4,800	...	.....	...	.....	..	.....	...	.....
Virginia	1	5,000	...	.....	1	5,000	...	.....	..	.....	...	.....
West Virginia	6	14,700	3	5,000	3	9,700	...	.....	..	.....	...	.....
Wyoming	9	99,300	8	97,300	1	2,000	6	3,700	1	750	5	2,950
Total	378	2,688,035	160	2,028,065	218	659,970	197	344,630	13	24,800	184	319,830



Absorption Tanks

made from "NATIONAL" HAMMER-WELD PIPE

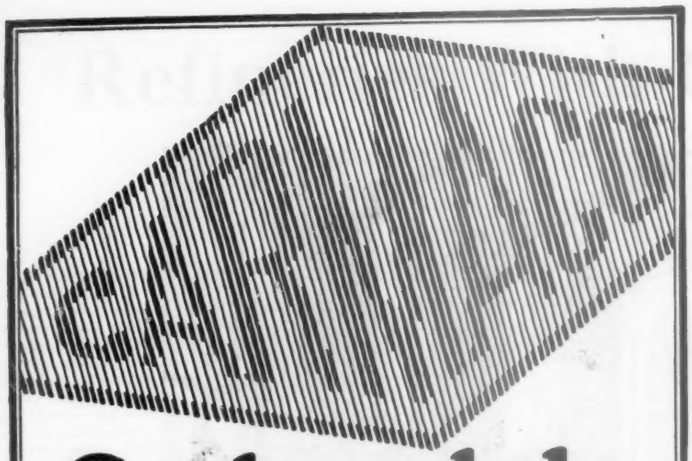
"NATIONAL" Hammer-welded Absorption Tanks, Expansion Chambers, Stills, and other Oil Refinery Vessels are built with the "Safety First" principle constantly in mind. They are forged into one homogeneous shell by the "hammer and anvil" process on a large scale, thus entirely doing away with rivets and overlapped seams. This means a smooth interior surface—high bursting strength—and leak-proof construction; and of particular importance—the whole vessel is annealed at one time to eliminate any stresses after all welding is done.

As heads, necks, orifices and other projections may be hammer-welded to the shell, the consequent freedom from internally projecting rivets and seams gives greater efficiency and working capacity and makes the vessels easy to clean. After the tanks are completed, including all nozzles and attachments, they are tested to a hydrostatic pressure of 50 to 100% in excess of the working pressure, and the welds are hammered with a ten-pound sledge during the test.

National Tube Company has ample facilities for executing a wide range of special designs in Oil Refinery Vessels, and our engineers will be glad to cooperate with you and offer suggestions in this work at any time. Ask for "NATIONAL" Bulletin No. 13, describing these tanks.

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

DISTRICT SALES OFFICES IN THE LARGER CITIES



Carbondale Refrigerating Machinery *for* Refiners

WHEN you buy Carbondale filter presses, chilling machines, sweating pans and cold settling apparatus you buy engineering experience, gained over a period of thirty years spent in building the greatest percentage of refrigerating machinery used by refiners today.

Our long specialization in this field is your guarantee that the desired results will be fully and economically produced when you install Carbondale Refrigerating Machinery.

The Carbondale Machine Co.
Carbondale, Pa.

SALES OFFICES:

New York Chicago Kansas City Pittsburgh
New Orleans Houston Dallas Los Angeles
Baltimore Philadelphia Buffalo

You'll find us in the phone book

PRESIDENT W. N. DAVIS EXPLAINS DISCOVERY DEPLETION ALLOWANCE

By Charles E. Kern

WASHINGTON, Nov. 28.—The House Ways and Means Committee has finally agreed to adopt a report to be drawn by a subcommittee retaining in the new revenue law the 50 per cent discovery depletion section, and writing into the law the treasury regulations arbitrarily defining what constitutes discovery.

The action came after a period of uncertainty, during which time it was alternately reported that discovery depletion would be eliminated entirely and that it would be cut to 25 per cent. Retention of the section was voted after William N. Davis, president of the Mid-Continent Oil and Gas Association, had presented individual members of the committee with a statement showing the far-reaching effect elimination of the section would have on the oil industry.

Under the new law as agreed upon by the committee, the bringing in of a well in a new territory proves a territory of 160 acres, of which the well is the center, or, in other words, the area proven by any well in a new territory ends a quarter of a mile in each direction from the mouth of the well.

Under the present law a taxpayer who brings in a well on property in a proven territory at the time he drilled his well is entitled to discovery value for depletion purposes, even though the property was proved at the time he drilled the well, provided he purchased the property before it was proven. The committee voted to eliminate this.

The incorporation of the provision that a new well proves 160 acres, although opposed by the oil industry as too arbitrary, was a partial victory under the circumstances, as it had been proposed to make a well in a new territory prove an area of 5 miles in each direction from the mouth of the well.

There is a real economic reason for the discovery depletion allowance, Mr. Davis said in a statement filed with the committee before it took action:

"The present attitude of the Treasury Department is based largely on the assumption that the allowance was put in the law in the first instance as a sort of subsidy or bonus, as encouragement given to the wildcatter to stimulate activity and to encourage production of oil which was bitterly needed in 1917 and 1918 for war purposes. On that theory we can understand the modification now proposed by the Treasury Department, but there is an economic reason for this allowance in addition to the one just outlined.

Must Consider Decline

"This economic reason is found in the character of oil production. An oil well is no sooner completed than its rapid decline begins. The same is true of pools and of the entire production of the United States. Maintenance of the necessary production of oil is secured only by the drilling every year of a vast number of wells. The following prediction is justified by the fairly uniform experience of past years. This year there will be drilled in the United States some 25,000 wells at a cost of from $800,000,000 to more than $1,000,000,000. Of this number between 25 and 30 per cent will be dry holes. Another 10 per cent will be so small as to be almost equivalent to dry holes, and another one-third of the whole number will have an initial production of less than 25 bbls. a day to the well, and a majority of these wells will not return the investment during their commercial lives.

"Thus the profits from the producing branch of the industry must come from about one-third of the wells drilled. Obviously, the oil producer, whether an individual or a corporation, must set aside from the income derived from his profitable wells a reserve for replacement of the oil produced, in an amount adequate to cover all of the contingencies of this hazardous and uncertain business. It would not be sufficient when producing cheap oil from a rich and prolific property to set aside for replacement no more than the cost of that oil. Such procedure followed by the distribution in the form of dividends of the remainder of the income would lead to bankruptcy or gradual liquidation of the company.

"It may be assumed that the cost of replacement will approximate the average cost of the discovery and development of a like amount of oil in the ground, and a producing company failing to make the necessary discoveries is frequently forced, in order to maintain its production, to purchase properties discovered by others. A replacement or depletion reserve must, therefore, be adequate to meet that contingency, and it was upon this ground that in 1918 Congress authorized the discovery value of a property to be the basis for depletion deduction. Oil producers should not be required to pay taxes on theoretical income which in a continuing business can not be distributed, but must be set aside to replace the oil being produced and sold."

PREHEATING FUEL OIL BY ELECTRIC HEATERS

By C. J. Garrigan

The efficient combustion of fuel oil depends, to a certain extent, upon the maintaining of a constant fluidity of the oil at the burners. Fluidity, in turn, depends upon the temperature of the oil.

In the Phoenix Rolls Co. two electrically heated oil heaters are used for preheating the fuel oil used in their open hearth furnaces. Each of these heaters consists of a cylindrical tank, 10 inches in diameter by 96 inches high. Thirty-two Westinghouse space heaters, arranged around the tank, heat the oil. The temperature is controlled by means of a bimetallic thermostat mounted on the side of the oil tank, operating through a motor-operated snap-switch and a contractor. The oil, which is circulated by a motor-driven pump, enters the heater at the bottom and is removed from the top. The capacity of each heater is sufficient to heat 100 gallons of oil per hour to 180-210 degrees Fahrenheit.

One of the chief features of this method is that the control apparatus keeps the temperature of the oil at the desired point without any attention on the part of the operators, through their use more efficient combustion in the open hearth furnaces is obtained and economical saving effected.

SUE TEXAS OFFICIALS ON CONSERVATION LAW

AUSTIN, Texas, Nov. 28.—President W. M. W. Splawn of the University of Texas, former member, and other members of the former Railroad Commission; R. B. Walthall, former oil and gas supervisor, and C. O. Rison, former petroleum engineer of the commission, were made defendants in a $50,000 damage suit by Pyle, Williams & Co. in Navarro District Court, according to citations received here.

The company alleges illegal enforcement of purported oil and gas rules, by which it is claimed Atlantic Oil Producing Co. was enabled to drain oil from the company's claim. The Atlantic Company is also a defendant. This suit follows the $2,000,000 suit filed by the Oxford Oil Co., and set for trial at Corsicana in December.

Defendants include Chairman Clarence E. Gilmore of the commission, and W. A. Nabors, who was a member of the board last year.

MORE PRESSURE STILLS

PORT ARTHUR, Texas, Nov. 28.—Twenty additional high pressure stills will be installed at the Gulf Refining Co.'s plant at Port Arthur, it has been announced. The Gulf's expansion program, it is estimated, will cost $1,500,000.

REED
ROCK BITS

Providing for Every Need

Reed Rock Bits are made in sizes from 2⅞" up to 24". Regardless of requirement, when hard formation is struck, there is a Reed Rock Bit available for the need.

The care with which these tools have been designed, their ability to stand up under the hardest conditions of service and their great cutting speed, recommend them in fields throughout the world.

REED ROLLER BIT COMPANY
Houston Los Angeles

A New and Better Way to Measure Low Pressure Gas

A new, simple and effective way to measure low pressure gas to commercial consumers, hotels, factories, etc., is the use of the Foxboro Type C Orifice Meter.

Extensive tests prove that the Foxboro Orifice Meter gives a much more accurate and dependable reading and makes a neater and more compact installation than the ordinary iron case meter.

The photograph above shows the Foxboro Orifice Meter installed at the new Mayo Hotel, Tulsa, Okla. The normal static pressure under which this meter operates is 8 oz. per sq. inch.

Two parallel pipe lines of different diameters, equipped with dissimilar orifice plates are manifolded into the 20"-20 oz. meter. The range of the orifice meter is instantly varied by manipulation of the needle valves.

This is the same orifice meter which is famous in every oil and gas field of the country for its ability to withstand the hardest field service. You can depend upon its built-in durability and life-long accuracy. Write for Bulletin 113-1.

THE FOXBORO CO., Inc.
Neponset Avenue, Foxboro, Mass., U. S. A.
205 So. Cheyenne Avenue, Tulsa, Okla.
New York Chicago Boston Philadelphia Pittsburgh
Cleveland Rochester Birmingham Los Angeles
San Francisco Seattle Portland, Ore.

FOXBORO
Reg. U. S. Pat. Off.
THE COMPASS OF INDUSTRY

DIVIDEND CHANGES BY OIL COMPANIES

To date this year, 25 of the important oil companies have either increased dividends, resumed payments which had been suspended, or initiated payments.

Improvement in dividend payments and profits, says the Wall Street Journal, was not restricted to any one area of operation nor to companies engaged in any particular department of the industry. Rather, they were diversified with three Pacific Coast organizations raising their dividends; companies engaged almost exclusively in refining and marketing have done likewise. But the major increases, it may safely be said, took place among the producing organizations.

Below is presented a table setting forth by companies the changes in dividends which have taken place so far this year:

Extra Dividends	
Anglo-American	$3 3 1-3% stock
Borne-Scrymser	$ 6.00 cash
Magnolia	.75 cash
Mtn. Prod., raised from 25c to 30c quar.	
Salt Creek Prod. raised from 30c to 42½c quar.	
National Transit	.50 cash
Sun Oil	2% stock
S. O. of Neb	10.00 cash
Union Tank Line	$3 1-3% stock
Vacuum Oil	$3.00 cash
Increased Dividends	
Associated Oil	$1.50 to $2.00
California Pet.	1.75 to 2.00
General Pet.	2.00 to 3.00
Imperial Oil	3.00 to 4.00
Pan American	4.00 to 6.00
Pacific Oil	2.00 to 3.00
Pennok Oil	1.50 to 2.00
Phillips	2.00 to 3.00
Shell Union	1.00 to 1.40
Dividends Resumed	
Barnsdall	$2.00 basis
Marland	3.00 basis
Skelly	2.00 basis
Initial Dividends	
Lion Oil	$2.00 basis
Mt. & Gulf	2% q. & 1% ext.
Pan Am. West	$2.00 basis

In addition to the dividend changes listed, Chesebrough Manufacturing Co. this year retired its $1,000,000 of preferred from treasury; Anglo-American oil paid off $7,500,000 of notes, and Swan & Finch Co. paid 12 per cent a share on accumulated preferred dividends.

Importance of some of the dividend changes may not be apparent from a mere statement of the rate. Thus Pan American's increase from $4 to $6 represented additional payment to shareholders of more than $5,000,000 a year. Pacific Oil's increase of $1 amounts to $3,500,000 a year; Shell Union's raise of 40 cents a year means $4,000,000 more; Vacuum Oil's extra payments this year amount to about $7,500,000; Marland's resumed dividends of 75 cents quarterly amount to about $5,600,000 a year, while the increase of $1 by Phillips, to be inaugurated with the next payment, will amount to $2,500,000 a year.

From an earning standpoint, the figures reported for a number of companies for the first nine months of this year indicate that there has been ample justification for the numerous increased and extra dividends as well as the resumption of payments by companies. In fact, while the expansion in dividends has made a creditable showing, profits reported show that earnings have increased to a larger extent than dividend payments.

Appended is a table showing nine months' earnings of 18 companies, this year and last year. The aggregate was $86,633,362 for this year, an increase of about 50 per cent over the total for the first nine months last year. Numerous companies have shown even more marked improvement, notably Marland's net of $13,690,029 after all reserves except taxes this year against $1,233,767 last year. Earnings of three of the companies are available for this year, but not in 1924, so they are not included in the total for this year.

	Nine months 1925	Nine months 1924
Barnsdall Corp.	$ 2,158,996	$ 1,033,414
California Pet.	5,142,975	2,471,727
Mid-Continent Pet.	*11,254,263	†.....
Houston Oil	1,306,532	1,744,398
Independent O. & G.	2,165,913	679,625
Louisiana Oil Ref.	830,789	*1,282,382
Marland Oil & Ref.	‡13,690,029	1,233,767
Phillips Petroleum	*16,012,769	*12,609,924
Pierce Petroleum	455,275	†.....
Shell Union Oil	‡19,705,863	‡17,510,703
Simms Petroleum	2,307,760	1,808,714
Pennok Oil	854,749	†.....
Skelly Oil	3,096,413	1,016,723
Texas Pac. Coal & Oil	*1,666,270	* 1,627,931
Tidewater Oil	5,651,082	3,848,022
Transcontinental Oil	1,206,611	*33,784
Union Oil of Cal.	8,750,000	9,000,000
White Eagle O. & R.	*2,488,079	*1,923,785
Totals (omitting companies not reporting in 1924)	$86,633,362	$57,790,116

*Before depreciation and depletion. †Not available. ‡Before Federal taxes. §Net loss.

Conservation Agent Insists Wild Gassers Be Put Under Control

J. A. Brake, in charge of the El Dorado office of the Arkansas Conservation Department, recently declared war on operators who are allowing giant gassers to blow wild on their leases in the Norphlet area.

He has started a campaign for strict observance of all conservation measures and intends to call upon county officers to help him in the move. Claiming that studied indifference is being shown by many operators and to show them that he means business, Mr. Brake contemplates the early arrest of several on whose leases wells are said to be running wild. In filing charges, the agent intends to ask a fine of $1,000 for each day an operator allows gas of his wells to blow wild.

For some time Mr. Brake has been busy helping to close in wild wells and in Section 9-16-15, scene of many of the wild gassers, only one more well was said, at this writing, to be uncapped. Work was being done on this well. Brake alleges that while he has been busy on one well, other wells have been allowed to blow wild with no steps taken to stop the flow.

START TWO DEEP TESTS IN TEXAS PANHANDLE

FORT WORTH, Tex., Nov. 28.—Johnny Hofmeier, of Fort Worth, has started the drilling of two deep tests on the Burnett 6666 Ranch in Carson County, Texas Panhandle. One of the wells is on what is known as the Hicks and Sonnomaker block and the other on a block originally taken by United States District Attorney Henry Zweifel, of Fort Worth. The Zweifel block has been taken over by J. S. Cosden, for whom Hofmeier is drilling the well.

Both these wells will be drilled to what is known as the granite wash formation from which the production in the Panhandle is obtained. These locations are from 6 to 8 miles south and east of the present production on the Burnett Ranch and their progress will be watched with considerable interest by those interested in the development of the Panhandle.

HENRY C. ROESS DEAD

OIL CITY, Pa., Nov. 26.—Henry C. Roess, retired, who for many years had been in the service of the National Transit Co. and the southern group of pipe lines, died in this city November 17. He had been in poor health a long time. Deceased, who was 58 years of age, entered the employ of the National Transit Co. after graduating from Cornell University 30 years ago. He was an engineer. When the Standard Oil Co. was dissolved in 1911 he was made assistant chief engineer of the southern group of pipe lines and was also in charge of the real estate and tax department. Notwithstanding poor health he remained active until early this year when illness forced his retirement. The funeral was held Friday, November 20.

PRODUCTION IN PANUCO

In the table of production of heavy oil in Panuco and Ebano fields during September published recently miscellaneous companies should have totaled 697,000 bbls., making the total production 5,099,000 bbls., a daily average of 169,960 bbls. This makes the total production of heavy and light oil in Mexico in September 7,533,000 bbls., an average of 251,100 bbls. daily, against 8,182,000 bbls., an average of 263,935 bbls. in August.

TEXAS GROSS PRODUCTION THIRD QUARTER SHOWS SLIGHT DECLINE

A comparatively slight decline was registered in the gross production of Texas during the third quarter of this year as compared to the second quarter, according to the report compiled by the State Auditor for taxation purposes. The report, which shows a total production for the third quarter of 34,065,009.43 bbls., as compared to 34,456,566.03 bbls. for the second quarter, follows:

Name and Address—	Barrels	Av. Price
Atlantic Oil Royalty Corp., New York, N. Y.	2,646.28	$ .95
Arkansas Fuel Oil Co., Pittsburgh, Pa.	5,566.34	1.98
Adams & Oldham, Beaumont	1,292.36	1.50
Alles, J. W., Wichita Falls	1,300.01	2.19
A. B. C. Oil Co., Electra	1,616.28	2.19
Arkmo Oil Co., Somerset	2,412.22	1.44
Artex Oil Co., Wichita Falls	6,616.47	2.15
Adams, Brown & Lickey, Wichita Falls	6,278.88	2.18
Albany Oil Co., Breckenridge	2,890.23	1.94
Appleman & Guetman, Tulsa, Okla.	3,912.10	2.08
Appleman, H., Tulsa, Okla.	43.49	1.93
Alonzo Oil Producers, Laredo	5,980.37	1.06
Ada Belle Oil Co., Batson	22,078.86	1.60
Ascot Co., The, Wichita Falls	12,879.85	2.24
Amster, H. L., Ardmore, Okla.	6,813.60	1.45
Ashe Syndicate, The, Fort Worth	1,033.59	2.02
Arnold, M. J., San Antonio	466.77	1.52
Andrews Petroleum Co., New York, N. Y.	6,769.00	1.07
American Refining Co., Wichita Falls	19,195.13	2.04
Acorn Oil Co., Beaumont	11,436.60	1.66
Andrews, W. P. et al, Breckenridge	7,464.00	1.71
Abercrombie, J. S. Co., Houston	47,379.09	1.62
Arnold, M. J. (Avant Lease), San Antonio	439.92	1.30
All-American Oil & Gas Co., Oklahoma City, Okla.	92.08	2.09
Arlington Oil & Gas Co., Arlington	146.03	1.08
Amicable Life Insurance Co., Waco	298.00	1.50
American Texas Oil Co., Somerset	450.26	1.82
Apple-Brandenberry Oil Co., Wichita Falls	8,436.27	2.09
Apple-Brandenberry Oil Co. et al, Wichita Falls	17,379.92	2.51
Associated Oil Co., San Francisco, Calif.	145,068.36	1.54
Associated Petroleum Co., Fort Worth	14,281.51	1.76
Associated Petroleum Co., Fort Worth	5,376.42	1.83
Agate, A. L., Trustee, Eastland	55.16	1.55
Agate, A. L., Trustee, Eastland	385.29	1.89
Atlantic Oil Producing Co., Dallas	278,177.37	2.04
Aztec Petroleum Co., San Antonio	486.06	1.05
Alworth, E. M., Laredo	1,151.18	1.00
Atlantic Oil Royalty Corp., New York, N. Y.	3,013.04	1.06
Adamson Oil & Gas Co., Mexia	1,450.00	1.76
Anderson, E. J., Wichita Falls	567.12	2.32
Amarillo Oil Co., Amarillo	2,761.84	1.35
Brady, J. F., Ardmore	774.65	1.66
Bailey & McClure, Wichita Falls	932.10	2.22
Brock & Showers, Corsicana	28,238.50	2.35
Baker, J. A., & Mollie, Breckenridge	5,008.00	1.95
Benkendorfer, J. P., San Antonio	1,191.24	2.13
Burleson & Chenault, Wichita Falls	9,930.02	2.13
Brown, Mrs. Carrie L. et al, Orange	26,383.33	1.50
Big Bend Oil & Gas Co., Laredo	16,068.90	1.10
Bright, Samuel, Wichita Falls	2,092.64	2.30
Benson, W. L. & Co. and Empire Fuel & Gas Co., Robinson, Ill.	1,264.37	1.87
Bartlett Production Co., Thorndale	4,279.52	2.25
Braden Co., The, Eastland	5,011.20	1.74
Barkley & Meadows, Corsicana	91,730.16	2.12
Barkley, T. G., Sour Lake	1,311.10	1.65
Blue Bonnet Oil Co., Wichita Falls	1,065.77	2.05
Bashara & Bashara, Waco	226.50	1.50
Burk Venus Oil Co., Dallas	67.98	2.00
Bullington, Lee Pendleton & Hammon, Wichita Falls	8,887.47	2.28
Bullington, Lee & Pendleton, Wichita Falls	3,869.63	2.08
Borealis Oil Co., Oklahoma City, Okla.	6,593.35	2.20
Burkburnett Production Trust, Wichita Falls	2,116.30	2.30
Bashara, M. J., Wichita Falls	5,647.95	2.15
Brinkley Producing & Refining Co., Pittsburgh, Pa.	1,275.00	1.70
Bexata Oil Co., San Antonio	2,727.09	1.66
Baldwin, F. C. et al, Fort Worth	6,687.03	2.25
Boyd, E. W., Cisco	3,042.00	2.19
Bashara, J. F., Houston	59,504.42	1.55
Bowman Oil Co., Rockdale	3,736.40	2.16
Bernstein, Eli D., Oklahoma City, Okla.	290.93	1.96
Big 4 Oil Co., El Paso	628.11	1.97
Basham, C. E., Wichita Falls	45.26	1.94
Burton McKee Oil Corp., Strawn	1,140.15	1.99
Barkley, Crotty, Six & Little, Ranger	17,970.64	2.10
Barkley & Crotty, Ranger	13,463.44	2.12
Bridwell & Mayfield, Wichita Falls	25,021.44	2.22
Bolding, W. P., Wichita Falls	840.29	2.15
Bennett Mills, Houston	10,640.83	1.68
Bryan Oil Corp., Wichita Falls	2,724.78	2.06
Broughton, S. J., Brownwood	110.00	1.25
Buckeye Pipe & Supply Co., Breckenridge	1,241.90	1.85
Big Lake Oil Co., Pittsburgh, Pa.	1,166,302.88	1.98
Blair & Kell, Dallas	10,878.87	2.21
Bohner, C. J., Burkburnett	5,835.21	2.10
Beggs, Geo., Strip, Fort Worth	3,458.53	2.42
Brady Bros., Ardmore, Okla.	188.10	2.15
Biel, Wm. A., Von Ormy	40.00	1.74
Biggs Oil & Gas Co., McKinney	1,835.00	2.29
Bell Burk Oil Co., Waco	471.85	2.00
Brown, Dr. E. W. Estate, Orange	1,075.58	1.50
Brown, Geo. I., San Antonio	1,926.37	1.60
Baker Oil Co., The, Inc., Houston	4,844.48	1.58
Blue Bonnett Petroleum Co., San Antonio	2,122.22	1.46
Bradley, E. L., Houston	148.72	2.01
Bartlett, Wm. & Co., Electra	752.94	2.28
Boller, C. W., Wichita Falls	1,338.04	2.35
Bowers Oil Lease, Thrall	150.00	1.00
Big State Oil Corp., Dallas	2,523.50	1.00
Buckeye Development Co., The, Columbus, Ohio	335.97	1.74
Buchanan, S. R., Batson	15,483.96	1.59
Brannon & Murray, Eastland	2,425.00	2.10
Bleakley & Kinnison, Wichita Falls	1,477.06	1.96
Borman, F. J., Sipe Springs	1,313.00	1.99
Baker, Eidson & Seeligson, Tr., Dallas	1,553.67	1.63
Brownwood Producing & Refining Co., Brownwood	3,713.54	2.04
Burns & Maxson, Wichita Falls	16,398.67	1.95
Bridwell & Heydrick, Wichita Falls	113,389.57	2.14
Bridwell & Heydrick, Trustee, Wichita Falls	10,243.97	2.23
Barkley & Meadows, Wichita Falls	69,947.97	2.17
Brothers Oil Co., Inc., Tulsa, Okla.	14,605.11	2.28
Bay Oil & Gas Co., Mirando City	3,630.93	1.02
Big Indian Oil & Development Co., Gainesville	1,099.24	2.00
Bass & Dillard (Kemp & Kempner Lease), Wichita Falls	1,288.56	2.19
Black Cat Oil Co., Electra	2,656.88	2.06
Breckenridge Gasoline Co., Toledo, Ohio	378.82	1.80
Bynum, W. W., Minerva	2,724.81	2.06
Banner Oil Corp., Wichita Falls	2,217.43	1.98
British American Oil Producing Co., Tulsa, Okla.	33,714.35	2.21
Bennett (Mills) Production Co., Houston	49,728.35	1.57
Bliss & Weatherbee, Shreveport, La.	7,089.76	2.05
Bonner, J. H. S. et al, Wichita Falls	707.25	2.18
Bonchil Co., The, Wichita Falls	20,643.96	2.13
Crowe, W. H. & Elmer, Wichita Falls	100.52	2.24
Clear Lake Oil Co., Rockdale	3,000.43	2.10
Corona Petroleum Co., Jersey City, N. J.	1,778.00	1.95
Chandler, C. G., San Antonio	4,273.35	1.06
Charter Oil Co., Brownwood	3,791.35	1.02
Chapman, P. A., Jr., Eastland	1,234.19	1.82
Continental Oil Co., Denver, Colo.	261,267.49	1.67
Cline Oil Co., Wichita Falls	4,016.50	2.25
Cline, W. D., et al, Wichita Falls	570.95	2.25
Canyon Oil & Gas Co., Cross Plains	9,705.13	2.18
Coyle Concord Oil Co., San Antonio	3,459.27	2.03
Conner, Son & Claughley, Gotebo, Okla.	10,299.85	....
Cox, Edwin B., Ardmore, Okla.	7,354.92	....
Cardinal Oil Co., Eastland	8,991.39	2.30
Coons & Hotchkiss, Graham	4,175.24	2.04
Consolidated Oil Co. of Texas, Wichita Falls	6,096.68	2.29
County Line Co., Wichita Falls	14,361.56	2.18
Clay, J. D., Houston	4,471.86	1.60
California Co., The, Colorado	171,977.00	1.35

GRAVER BUILT

Graver Builds

Tanks
Welded
Riveted
Arch Rivet
(Riveted, Inside & Outside Welded)
Structural Supports
Tower Tanks
Standpipes
Any Size Tanks
Erected Anywhere

Refinery Equipment

Jenkins Cracking Process

Stacks-Breechings

General Steel Plate Construction

Water Softeners
Hot Process
Cold Process
Zeolite
Household

Filters—Pressure

Purifying Systems for Swimming Pools

NEW EQUIPMENT

Whether it is a single item of steel plate equipment or a complete refinery your requirements will be well carried out by remembering just one word

GRAVER

Design, fabrication, erection either in shop or field are handled by an organization developed by 67 years experience in building this equipment.

GRAVER Corporation Founded 1857
EAST CHICAGO, INDIANA

NEW YORK Grand Cent. Term. | CHICAGO Steger Building | TULSA Atlas Life Bldg. | HOUSTON West Building

THE AUSTIN METHOD

Interior of large manufacturing unit, designed, built and equipped by The Austin Company for the Pittsburgh Transformer Company. The sixth contract for this company in seven years.

Austin Buildings for Every Branch of the Oil Industry

AUSTIN Industrial Construction includes types of buildings suited to the requirements of every branch of the Oil Industry.

The heavy steel-frame building shown above is adapted to heavy machine work, tank car repair shops, and other operations that require the heavier type of housing.

Austin steel buildings for field service, such as compressor or engine houses, boiler or pump houses, machine shops, warehouses, garages, filling stations, are built by Austin or furnished complete to be erected by the purchaser.

Phone, wire, or mail the coupon for further information on Austin Complete Building Service and Austin Material Sales Service.

THE AUSTIN COMPANY, Cleveland, *Engineers and Builders for the Oil and Gas Industry*
THE AUSTIN COMPANY OF TEXAS: Dallas, 627 Linz Bldg.
New York Cleveland Pittsburgh St. Lous Chicago Philadelphia Seattle
Portland Detroit Birmingham Miami
THE AUSTIN COMPANY OF CALIFORNIA: Los Angeles and San Francisco

THE AUSTIN CO., Cleveland
We are interested in the erection of a ..... building ..... x ..... stories high and would be pleased to receive a copy of "The Austin Book of Buildings"—free to Industrial Executives.
Firm .....
Individual .....
Address .....
O&GJ-12-3-25

AUSTIN
ENGINEERING CONSTRUCTION EQUIPMENT

Name and Address—	Barrels	Av. Price
Carnahan Producing & Refining Co., Canton, Ohio	3,687.04	1.20
Christie & Stoops, Ranger	879.72	1.96
Conley, Delaney & Dyer Bros., Ranger	1,277.46	2.17
Clark, R. R., Wichita Falls	4,573.97	1.95
Cezuex & Martin, Humble	7,110.71	1.62
Culbertson Co., Wichita Falls	15,155.72	2.17
Crystal Oil Corp. of Texas, Denver, Colo.	3,571.21	2.03
Capitol Oil Co., Austin	2,723.53	1.60
Cohen & Lebow Trust, Wichita Falls	749.55	1.98
Chenault, N. B., Wichita Falls	551.70	2.14
Continental Supply Co., St. Louis, Mo.	416.22	1.83
Caltex Oil Co., Spokane, Wash.	870.00	1.47
Commercial Petroleum Co., Wichita Falls	2,487.21	2.09
Caprito & Graham, Breckenridge	1,526.22	1.86
Cisco Drilling Co., Eastland	7,888.21	1.96
Christie Bros., Wichita Falls	23,318.33	2.05
Cassoday Oil Corp. (H. H. Patton, Tr.), Fort Worth	497.07	2.08
Clark, Harbin & Baldridge, Wichita Falls	3,270.36	1.95
Caruthers Co., San Antonio	2,403.66	1.42
Cornhuskers Oil Co., Lincoln, Nebr.	9,249.04	1.06
Cram & Clark, Wichita Falls	5,943.92	2.26
Cranfill Bros. Oil Co., Dallas	8,076.63	....
Carry & Conway Bros., Cross Plains	5,714.39	2.45
Camp Oil & Gas Co., A Trust Estate, Wichita Falls	19,006.64	2.20
Crown Oil & Refining Co., Houston	20,825.96	1.58
Crown Central Petroleum Co., Houston	98,659.85	1.38
Conway Bros. & Gilman, Cross Plains	61,751.87	2.38
Corsicana Oil & Refining Co., Corsicana	7,831.36	1.08
Cotton, J. H. & Co., Iowa Park	1,482.98	2.04
Cohen, Aaron, Wichita Falls	18,033.23	2.21
Cranfill & Reynolds, Cisco	97,733.62	2.01
Chapman, P. A., Estate, Waxahachie	46,217.62	1.97
Cowling & Newell Oil Co., Wichita Falls	851.88	2.07
Coppock & Coleman, Iowa Park	1,803.98	2.18
Carteret Oil Co., Jersey City, N. J.	2,191.78	2.11
Caldwell Guadalupe Pick Up Station, Luling	7,095.05	1.05
Commercial Petroleum Co., Brownwood	371.20	1.03
Clem Oil Co., Houston	623.89	1.54
Cheney & Anzac Oil Co., Graham	1,618.36	2.31
Coriett, W. B., Wichita Falls	1,198.06	2.12
Cochard & Williams, Moran	244.96	1.97
Cady, C. C., Moran	1,874.22	1.81
Cosa Oil Co., Dallas	1,179.82	2.28
C. W. M. T. Oil Co., Wichita Falls	2,069.59	2.17
Douglas Oil Co., Tulsa, Okla.	5,022.56	1.50
Developers Oil & Gas Co., Wichita Falls	609.00	2.00
Dixon Creek Oil Co., Amarillo	9,643.15	1.56
Dayton Oil Co., Dayton	2,487.76	1.50
Deering, John A., Houston	3,019.53	1.25
Dillon Glasscock Co., San Antonio	642.50	1.44
Deutser, B., Trustee, Beaumont	1,342.57	1.60
Darby Petroleum Corp. of New York, Tulsa, Okla.	852.81	1.85
Drillers Developing Co., Electra	3,323.78	2.20
Daniels & Rutis, Wichita Falls	6,391.56	2.23
Derby Oil Co., The, Dallas	2,060.01	2.15
Developers Oil & Gas Co., Wichita Falls	261.00	2.05
Daniel, S. B., Wichita Falls	1,750.48	2.18
Dalton, Jack Oil Co., Mineral Wells	707.91	2.10
Dickey Oil Co., Putnam	1,695.84	2.12
Dale, E. A., Special, Electra	217.20	2.04
Dale, E. A. Oil Co., Electra	3,465.91	2.30
Davis, L. R., Tulsa, Okla.	165.20	1.58
Donnelly, G. J., Trustee, Fort Worth	643.69	2.37
Durston, H. H., Trustee, Houston	886.70	1.80
Dale Oil Corp., Wichita Falls	51,054.26	2.19
Detert & Olmstead, San Antonio	66,023.07	1.05
Dennis, J. S., Moran	3,045.66	1.94
Dixon Creek Oil Co., Amarillo	19,393.87	1.56
Davis, Caroline A., Somerset	851.99	1.52
Dibble Oil Co., San Antonio	2,190.17	1.05
Dominion Oil Co., Tulsa, Okla.	2,631.61	1.98
Dale & Crawford, Electra	740.33	2.33
Duquesne Oil Corp., Eastland	1,015.86	....
Davis, Hart Oil Co., Wichita Falls	20,645.98	2.23
Deep Sand Syndicate, Corsicana	450.00	1.00
Duncan, J. W., Wichita Falls	11,144.76	2.10
Dale Knotts Oil Co., Wichita Falls	317.24	2.22
Driscoll, T. Lorin, Moran	4,908.05	1.81
Douglas Oil Co., Tulsa, Okla.	4,295.50	1.45
Dallas Bradford Oil Co., Dallas	814.07	1.80
Domestic Oil Co., Cisco	2,531.78	2.40
Easton, E. S., Wichita Falls	3,358.28	2.16
Empire Gas & Fuel Co., Bartlesville, Okla.	136,429.08	2.12
East Batson Oil Co., Batson	13,746.43	1.54
El Paso Burkburnett Oil Co., El Paso	102.88	1.99
Erie Investment Co. of Texas, Toronto, Canada	970.76	1.90
Exley & Covert, Iowa Park	886.94	2.10
Ellwood Co., The, Milwaukee, Wis.	4,887.25	1.75
Ebberts, Folloure & Hebert, Beaumont	848.39	1.54
Eddy Oil Co., Beaumont	2,409.88	1.54
Electra Production Co., Electra	6,483.06	2.23
Emlet, L. M., St. Louis, Mo.	774.00	1.34
Evans Oil Co., San Antonio	4,058.29	1.05
Ernest Oil Co., Rockdale	1,837.34	2.18
Electra Gulf Oil Co., Electra	5,906.55	2.18
Echols Carter Drilling Co., Lockhart	5,105.58	1.10
Evangeline Petroleum Co., Wichita Falls	2,587.73	2.40
Erickson, David, Wichita Falls	249.95	2.13
Eureka Producing Co., Tulsa, Okla.	29,730.15	2.13
Evangeline Petroleum Co., Wichita Falls	2,769.07	2.34
Eby, Webb T. et al, Eastland	934.98	2.10
Eastland Oil Co., Fort Worth	27,764.52	1.93
Edgerly Petroleum Co., Orange	38,854.51	1.58
Electra Callahan Oil Co., Electra	9,612.12	2.26
Eggers, J. E., St. Louis, Mo.	1,429.31	1.61
Empire City Co., Tulsa, Okla.	272.02	2.14
Ellis & Anderson, San Antonio	200.00	1.44
Eagle Creek Oil Co., San Francisco, Calif.	1,773.51	2.20
Four States Oil Co., Abilene	1,767.26	1.90
Fortune, John B., Lockhart	25.50	.90
Forbes, Thomas, Graham	325.00	2.00
Fuchs, Frits, Taylor	3,731.00	2.11
Five Rivers Oil & Gas Co., Wichita Falls	1,350.09	2.24
Fisher, Henry J., Newport, N. Y.	2,905.25	1.91
Forty-One Oil Co., Wichita Falls	1,829.70	2.20
Franchot, D. W., & Co., Tulsa, Okla.	307.47	1.85
Fuller & Daniels, Wichita Falls	4,469.31	2.50
Fisher & Gilliland, Wichita Falls	15,698.50	2.31
F. H. E. Oil Co., Sherman	28,465.24	1.83
Fountain Production Co., Saratoga	4,350.52	1.57
Foster, Fred B. & Co. (10-1-23 to 12-31-24), Fort Worth	114,905.80	1.41
Franklin, Wri, Ardmore	24,091.11	2.29
Ferguson & Watson, Electra	3,139.00	2.22
Fisher, Harris Oil Co., Cisco	1,699.52	2.07
Freeman, Hampton Oil Co., Wichita Falls	16,400.84	2.40
Florence Oil Co., Oklahoma City, Okla.	9,232.80	2.34
Flynn, W. B., Beaumont	3,279.84	1.57
Fox, Perry L., Ranger	671.84	2.07
Four & Four Oil Co., Humble	189.01	1.50
Florence Oil Co., Oklahoma City Okla.	16,744.06	2.35
Frontier Oil Co., San Antonio	20,113.57	1.96
Ferguson, Hawkins & Hester, Wichita Falls	11,226.16	2.44
Fensland Oil Co. of Texas, Denver, Colo.	10,996.38	2.00
Fulbright, Crooker & Freeman, Houston	2,824.32	2.16
Freeport Sulphur Co., Freeport	179.00	1.50
Fogle Oil Co., Minerva	2,837.75	....
Fort Ring Oil & Gas Co., Fort Worth	1,223.75	2.21
Farish & Ireland Lease, Houston	5,249.12	1.40
Fresno Oil Co., Wichita Falls	26,638.07	2.14
Gilliland Oil Co., Tulsa, Okla.	1,697.13	2.47
Gutzler & Cottingham, Indianapolis, Ind.	51.52	2.09
Gallagher & Lawson et al, Desdemona	3,958.68	2.01
Green, C. I., Wichita Falls	2,306.42	2.06
Grayce Oil Co., Tulsa, Okla.	14,524.20	2.22
Grayburg Oil Co., San Antonio	357,270.54	1.18
Goodloe & Harris, Putnam	11,490.00	2.21
Gulf Production Co., Houston	3,656,318.09	1.72
Geological Petroleum (J. H. Holdeman), Cisco	291.30	2.16
Gary Petroleum Co., Fort Worth	639.35	....
Golconda Oil Co. No. 1, Wichita Falls	403.59	2.00
Gates Oil Co., Oklahoma City, Okla.	7,670.37	1.18
Gladys Belle Oil Co., Tulsa, Okla.	10,636.19	1.59
Gilliam Logan Oil Co., Fort Worth	4,010.50	1.45
Gwynn, P. F., Agt. for J. F. Boyd, Wichita Falls	4,445.48	2.19
Gwynn, P. F., Wichita Falls	6,548.55	2.14
Glass Bros., Minerva	1,609.90	....

The Perfected Joint

Sheffield Sucker Rods

THE perfected joint of the Sheffield Sucker Rod has proven in actual service to be the ideal joint for extremely severe duty. And the mechanical design makes unnecessary the displacement of an excessive amount of steel or the application of extreme heat in the forging —thereby allowing the finished product to retain the full strength of the high grade steel in and so necessary to a good Sucker Rod.

The joints on a string of Sheffield Sucker Rods are as strong as the rods themselves. The perfected joint insures true alignment, will not come unscrewed in service, and is produced with a wrench square to fit standard tools and elevators.

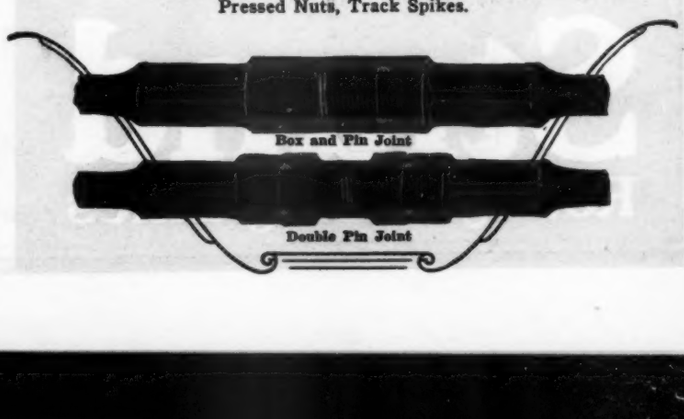
SHEFFIELD
SUCKER RODS

are manufactured in both the Box and Pin and Double Pin types. Three sizes ⅝", ¾" and ⅞" are available. Large stocks are on hand for immediate shipment from our plant and all stores of the International Supply Company.

Sheffield Steel Mills

(Kansas City Bolt & Nut Company)
KANSAS CITY

Manufacturers of Sheffield New Billet Reinforcing Bars, Rail Steel Reinforcnig Bars, Open Hearth Steel Merchant Bars, Merchant Iron Bars, Sheffield (Copper Bearing) Steel Blue Annealed Sheets, Sheffield Sucker and Pull Rods, M. C. B. Car and Locomotive Forgings, Oil Field Forgings, Machine and Carriage Bolts, Lag Screws, Rivets, Hot Pressed Nuts, Track Spikes.



In Every Rotary Field

Yellow Strand Rotary Casing Line insures safety and speed in the handling of heavy stands of drill pipe and in pulling wedged-in casing that offers fearful resistance to the cable's tug.

The odds in the rotary field are all against wire lines of anything less than superlative strength and elasticity. Use Yellow Strand. Avoid delays, hang-ups and frequent renewals.

Write for Catalog K-2, and name of nearest distributor.

BRODERICK & BASCOM ROPE COMPANY
St. Louis, Mo.

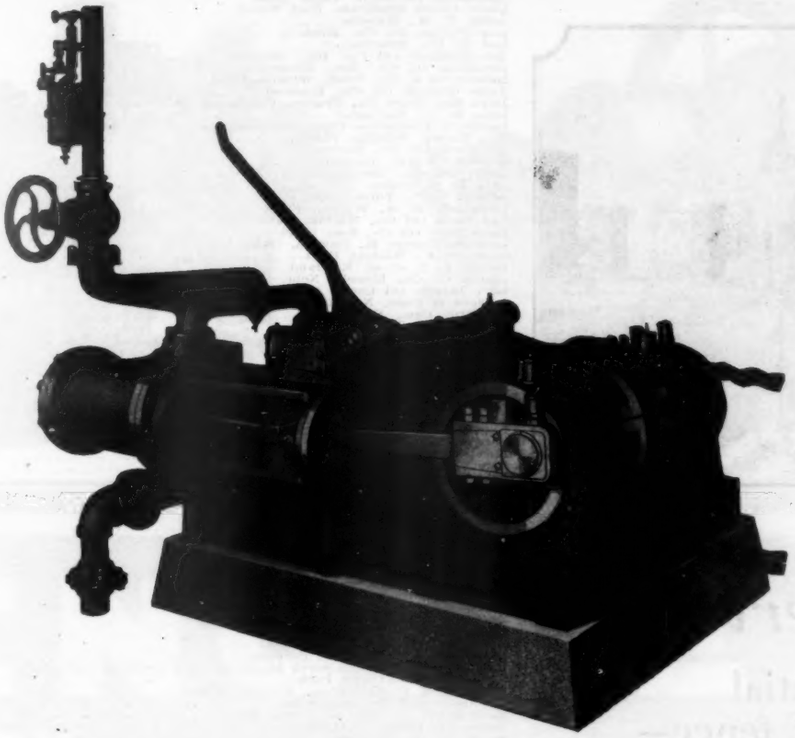
Eastern Office and Warehouse:
76 Warren St., New York City
Western Office: Seattle, Wash.
Factories: St. Louis and Seattle

Manufacturers of Patentsteel Drilling Lines and other dependable B. & B. wire lines.

JR-528

Yellow Strand
Rotary Casing Lines

Name and Address—	Barrels	Av. Price
Gultex Production Co., Waxahachie	5,634.45	2.24
Gilbert Co., The, Beaumont	6,438.81	1.58
Group No. 1 Oil Corp., Big Lake	1,190,857.13	2.08
Godley Oil & Gas Co., Henrietta	40,165.81	2.12
Glenridge Oil Corp., St. Louis, Mo.	5,372.36	2.10
Gilliland-Scott-Omohundro et al, Wichita Falls	5,016.66	2.24
Graham, H. L. et al, Wichita, Falls	1,785.63	2.04
Graham & Lash, Moran	7,310.28	1.99
Gilman, R. F. et al, Cisco	376.64	2.36
Granite Oil & Gas Co., Montrose, Colo.	393.42	2.26
Godfrey, H. L., Enid, Okla.	164.45	2.01
Goebel & Jones Rec. (Lone Star Refining Co.), Wichita Falls	801.87	1.82
Galvez Oil Corp., Tulsa, Okla.	7,730.44	1.97
Gholson, Moorman & Dorsey et al, Ranger	3,234.26	2.51
Golden Cycle Oil Co., The, Dalhart	595.81	2.01
Gallagher & Lawson, Desdemona	482.38	1.79
Gordon Oil Co. of Texas, The, Logan, Ohio	158.32	2.00
General Oil Co., Houston	3,194.43	2.36
Gates Oil Co., Ardmore, Okla.	4,974.42	2.47
Glasscock, M. E., San Antonio	713.07	1.60
Green, C. I., Wichita Falls	2,412.22	2.13
Gilchrist & Fowler, Wichita Falls	886.78	2.19
Galena-Signal Oil Co. of Texas, Houston	135,051.22	1.69
Gutzler, W. F., Wichita Falls	191.94	2.14
Gardner, J. A., Lease Account, Wichita Falls	8,843.76	2.27
Goolsbee & Goolsbee, Wichita Falls	345.64	2.11
Graham & Caprito, Breckenridge	2,046.08	2.04
Glasscock Leasing Syndicate, San Antonio	3,927.00	1.69
Gholson, Thompson, Barkley & Crotty, Ranger	9,807.28	2.18
Gulf Coast Oil Corp., Houston	26,898.97	1.58
Graham & Co., Breckenridge	371.62	1.85
Goolsbee & Graham, Wichita Falls	198.44	1.97
Gohlke & Gerard, Wichita Falls	39.82	1.65
Gordon Oil Co. of Texas, Logan, Ohio	217.70	2.06
Grand Duke Producing Co., Muskogee, Okla.	377.04	....
Grady D., Electra	865.09	2.32
Gas Ridge Development Co., San Antonio	169.54	1.71
Hart-Mexia Syndicate, Fort Worth	497.58	2.19
Hart Oil Corp., Fort Worth	459.19	2.29
Hemphill, M. R., Graham	1,791.48	....
Hickok Producing Co. & Devp. Co., Toledo, Ohio	219.97	1.46
Harvey, R. A., Houston	804.00	1.43
House & Lewis Oil Co., Cameron	1,631.18	....
Hobson & Voorhees, San Antonio	1,708.70	1.85
Hofmier & Deegan, Fort Worth	1,370.62	2.00
Hobbs Oil Co., Tulsa, Okla.	4,810.01	2.10
Hunt, J. C., Wichita Falls	2,084.30	1.57
Hoppes, W. T., Burkburnett	253.91	2.00
Haggard, J. E., Wichita Falls	5,399.66	2.03
Hooser, Jno. W., Dallas	20,389.15	1.93
Hughes, J. K., Oil Co., Inc., Mexia	71,083.57	1.92
Hughes, J. K. Devp. Co., Mexia	472,727.74	1.93
Homaokla Oil Co., Oklahoma City, Okla.	6,478.09	2.36
H. B. J. Oil & Gas Trust, Wichita Falls	3,067.75	2.29
Hub Oil Co., Dallas	493.45	2.47
Hereford Oil Co., Electra	6,934.64	2.13
Hueco-Ranger Oil Co., El Paso	268.72	2.10
Hankamer, Earl C. & Co., Sour Lake	2,004.07	1.58
Hamilton, H. L., San Antonio	8,456.28	2.07
Houston Oil Co. of Texas, Houston	9,746.92	1.80
Humphreys Corp., Houston	53,698.70	1.94
Helvetia Oil Co., San Antonio	15,589.94	2.02
Hoo Hoo Oil Co., Burkburnett	114.00	1.89
Helene Oil Corp., Wichita Falls	4,181.76	2.07
Humble Oil & Refining Co., Houston	3,830,444.83	1.90
Hambleton, George, San Antonio	792.45	1.59
Hagaman Refining Co., Ranger	1,286.28	1.80
Hoffer Oil Corp., Fort Worth	1,735.21	....
Hefley, McIntosh & Thomas, Cameron	928.44	....
Hammon, Jake L., Jr., Ardmore, Okla.	6,259.82	1.94
Heiber, W. S., Electra	29.15	1.72
Higgins Oil & Fuel Co., Houston	63,653.41	1.47
Hardy Oil Co., Wichita Falls	1,074.87	2.12
Hillyer, F. L., San Antonio	4,566.09	1.05
Hardie, J. M. & Co., Sour Lake	643.93	1.60
Howard Petrol Co., Wichita Falls	1,394.88	2.22
Hockaday & Shaw, Wichita Falls	2,315.31	2.13
Hamilton & Wilson, Wichita Falls	16,912.57	2.26
Houston Production Co., Houston	50,020.18	1.50
Hope Petroleum Co., Tulsa, Okla.	9,052.04	1.91
Hemby, J. M., Electra	930.50	2.19
Henderson, E. R., Trustee, Tulsa, Okla.	376.15	2.00
Hammon, W. H. et al, Wichita Falls	9,020.50	2.22
Herbert Oil Co. of Texas, Fort Worth	602.33	2.01
Hester, J. M., Trustee, Humble	929.00	1.58
Hester, Hawkins & Ferguson, Trustees, Wichita Falls	5,426.46	2.31
Halmack Oil Co., Dallas	2,147.64	2.14
H. Y. Oil Co., Inc., Fort Worth	19,702.27	2.09
Hughes, Wm. K., Trustee, St. Louis, Mo.	2,169.13	1.99
Heydrick, L. C., Trustee, Wichita Falls	1,829.81	2.00
Humphreys & Merritt, Wichita Falls	1,985.27	2.23
Howell-Easton, Electra	748.98	2.12
Howell, J. H., Trustee, Electra	680.91	2.21
Horn, Jno. E. and E. S., Kansas City, Mo.	2,172.39	2.10
Houseman, D. H., & Co., Dallas	31.09	2.25
Hitchman & Howard, San Antonio	2,331.34	1.75
Hickory Oil & Gas Corp., Fort Worth	458.27	2.11
Ironland Oil Co., Wichita, Kans.	135.72	2.26
Iowa Park Oil Co., Iowa Park	2,095.78	2.12
Inland Oil Co., Wichita, Falls	4,307.42	2.34
Infield Petroleum Co., Austin	2,330.36	1.93
Indiahoma Corp., The, Okmulgee, Okla.	1,815.38	2.27
Idaho Oil Co., San Antonio	2,701.76	1.74
Ilseng, A. G., Fort Worth	12,010.41	2.07
Jones, D. H., Mirando City	871.35	1.04
Jones-Garcia Oil Co., Mirando City	2,399.20	1.05
Judson Oil Co., Tulsa, Okla.	18,670.42	2.30
Johnson, O. C., Trustee, Laredo	1,613.14	1.25
Johnson Bros., San Antonio	13,938.88	1.94
Jones, Edwin M., El Dorado, Ark.	76,229.48	2.09
Jameson, Chas. M., Moran	1,812.18	2.29
Janellen Oil Co., Tulsa, Okla.	57.63	1.15
Jones, C. A., Strawn	1,708.56	1.84
Jackson, J. S., Trustee, Sour Lake	2,524.78	1.70
Jackson Co., The, San Antonio	1,996.05	1.63
Junior Oil Co., Cross Plains	2,959.47	2.43
Jones Oil Co., Wichita Falls	8,375.10	2.29
Julia Oil Co., Sour Lake	4,196.74	1.59
Kentucky Oil Corp., The, Wichita Falls	267.01	2.36
Kilgore, M. H., Beaumont	984.75	1.58
Knight-Higgs, Cisco	2,898.56	2.11
Knotts, F. F., Wichita Falls	771.12	2.22
Killam, O. W., Laredo	176,062.29	1.00
Killam-Condren Oil Co., Laredo	2,016.30	1.00
Kokomo Petroleum Co., Gorman	80.00	2.00
Kitselman & St. Albans, Laredo	87,736.95	1.15
Kornfeld, Mrs. Fannie, Tulsa, Okla.	324.52	2.00
Kurz, A. A. (Emil Jockel Lease), Somerset	30.07	....
Kurz, A. A., Somerset	505.00	....
Keough Bros., Cisco	6,411.24	2.39
Kay, Jno. C., Trustee, Wichita Falls	20,600.88	2.33
King & Daniel, Wichita Falls	740.72	2.30
Kirk & Brewer, Gorman	2,980.96	2.15
Kolp, C. F. (Agt. Henley & Vrooman), Electra	3,359.10	2.12
Kolp, C. F., Electra	28,784.29	2.15
Keener Oil & Gas Co. of Texas, Tulsa, Okla.	6,212.38	2.16
Kuhlemier & Kleiner Oil Co., Cisco	2,632.16	2.16
Koury, Mike, Houston	9,705.77	2.21
Kirby Petroleum Co., Houston	36,807.20	1.92
Kimmell & Dillard, Wichita Falls	5,031.10	2.11
Kemrow Producing Co., Wooster, Ohio	21,529.49	2.19
Keen & Wolf Oil Co., Shreveport, La.	28,507.95	1.58
Kate Bell Oil Co., The, Dallas	3,422.27	2.26
King Petroleum Corp., Wichita Falls	4,308.23	1.99
Kemp & Underwood, Cameron	424.26	1.98
Kavanaugh Petroleum Co., Houston	1,496.58	2.09
Kemp, Munger, Allen Oil Co., Wichita Falls	6,028.52	2.25
Kent, G. C., Corsicana	148,058.24	1.97
Kerr, T. P., Corsicana	360.14	1.89
Kluncke, Geo., Trustee, Von Ormy	1,346.11	1.50
Kleiner Bros., Cisco	371.10	1.70
Kleiner Bros., Cisco	410.78	2.15
Kurz Oil Co., Somerset	754.76	....
Keith, E. F., Desdemona	1,912.64	2.12
Larkin, W. B. (Burnet Lease), Wichita Falls	662.57	2.20
Lange, I. A., Attorney in Fact, Wichita, Kans.	950.06	2.26



The world's deepest oil well, 7591 ft.,—The E. J. Miley No. 6, Athens, Calif., was drilled with the Ajax and Ideal Twin Drilling Engines.

Ajax Quality in the Ideal Twin

IN the Ajax factory at Corry, Ajax engines have been built for nearly 50 years. Here the highest standards of manufacture of steam drilling engines have been developed. In this plant an order for Ideal Twin Engines is run through immediately after an order of the famous Ajax Engines. The same quality of material, the same precise workmanship, the same careful inspection is a part of both. That is why your Ideal Twin reflects the good qualities of the Ajax Engine. It has the same stamina, the same ability to keep up its original performance year after year, plus the smoothness in the flow of power that is given by the extra cylinder.

Made by

AJAX IRON WORKS
Corry, Pa.

Distributed by

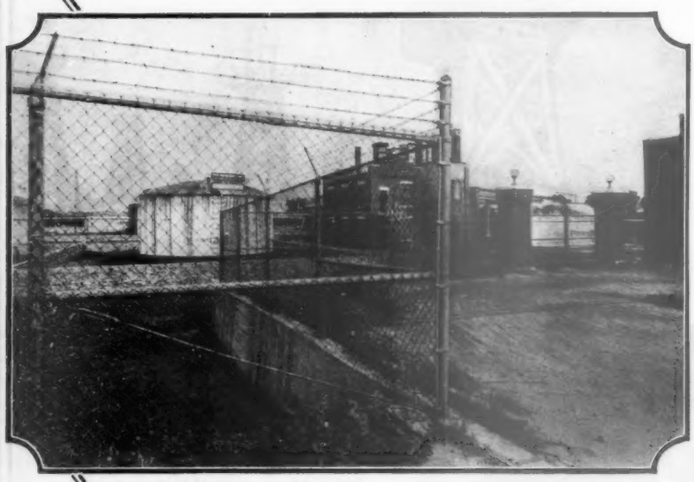
NATIONAL SUPPLY COMPANIES
In every oil field

AJAX ENGINES

Reg. U. S. Pat. Off.

INSIST ON GENUINE AJAX REPLACEMENT PARTS

34149



Quality *and Service*

* *

Both **are essential in choosing fence—**

The economical erection of a fence depends on two important factors.

* *

First: On Quality.

Second: On the ability of the company back of it to give prompt consultation and erection service.

* *

Page Fence answers both of these requirements. Its quality is inherent. For many years it has been recognized as standard. The uniform zinc coat, approximately five times the weight of ordinary galvanizing, protects the fabric against corrosion. Posts are bigger and set deeply in concrete—and heavily galvanized throughout. Fittings are stronger and heavier—no brittle castings to disfigure your fence or allow the fabric to sag.

* *

And back of Page Fence is a service that blankets the entire country. In your immediate vicinity is a Page Distributor who will gladly give you the benefit of his experience. Place your fencing problems squarely up to him. He will furnish plans and estimates without obligation. Write for his name and for the illustrated Page Fence Book showing typical installations. Address—

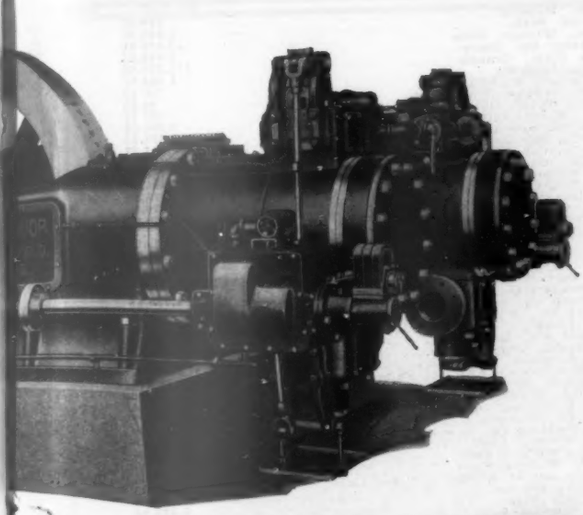
PAGE FENCE & WIRE PRODUCTS ASSOCIATION
215 North Michigan Ave., Dept. 912
Chicago, Illinois

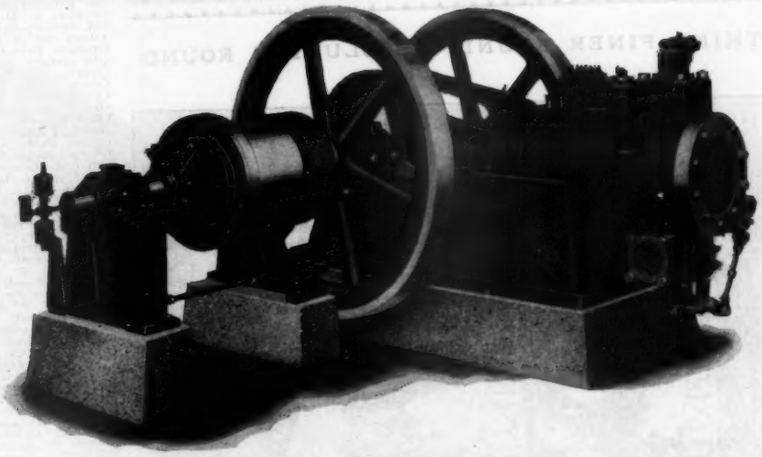
TRADE MARK
America's first wire fence-1883

Distributing wire link products made by the Page Steel & Wire Company, Bridgeport, Connecticut
District Offices: Chicago New York Pittsburgh San Francisco
Made in Canada by Dominion Chain Company, Limited
An Associate company of the American Chain Company, Inc., Bridgeport, Conn.

PAGE PROTECTION FENCE

Name and Address—	Barrels	Av. Price
Laclede Petroleum Co., Dallas	144.00	2.25
Lamb, Geo., E., Brownwood	1,958.93	1.45
Livingston, Henry S., Fort Worth	199.78	1.72
Livingston Oil Corp., Tulsa, Okla.	30,559.30	2.05
Little Caddo Syndicate, Fort Worth	2,772.17	2.30
Long, F. M., Humble	1,960.00	1.25
Lee Phillips Oil Co., Minerva	1,863.12	1.95
Lee Oil Co., Minerva	2,935.80	2.02
Lee-Niehause Oil Co., Inc., Minerva	755.55	2.06
Lee-Haus Oil Co., Inc., Minerva	2,311.54	2.02
Liberty Oil & Gas Trust, Wichita Falls	4,036.02	1.92
Lake Graham Oil Co., Houston	353.69	1.75
Lake Erie Trust Co., Trustee, Cleveland, Ohio	1,016.67	2.25
Long R. L., Navasota	1,498.85	....
Landreth Production Corp., Breckenridge	12,353.70	1.86
Lee Homer, Wichita Falls	1,538.83	2.25
Len-Cook Oil Co., Electra	1,686.88	2.20
Laredo Oil Co., Laredo	5,039.91	1.00
Light Oil Co., Beaumont	588.64	1.50
Lee, R. Q., Cisco	263.54	2.19
Lebow, C. H., Tulsa, Okla.	1,142.93	2.22
Langford, W. S., Wichita Falls	3,187.36	2.09
Lee Farm Oil Co., Wichita Falls	493.37	2.21
Lake View Oil Co., Sour Lake	17,274.39	1.28
Lawson, Eugene B., Nowata, Okla.	84,580.19	2.11
Lash, P. F., Wichita Falls	6,888.52	2.03
Lewis, J. E. et al, Eastland	3,275.96	2.16
Linedo Oil Co., Lincoln, Nebr.	6,147.72	1.14
Lion Tamers Oil Corp., Albany	4,280.65	1.74
Lawson & Pace, Nowata, Okla.	6,410.40	2.21
Leonard, Geo., Somerset	242.55	1.25
Leonard Oil Co., Somerset	429.65	1.64
Long, R. L., Navasota	1,489.85	....
Lamarque Co., The, Texas City	856.37	....
Lain Oil Co., San Antonio	1,910.86	1.59
Lowe Parry Oil Co., De Leon	235.77	1.85
Lowe, Delaney & Carter, De Leon	12,043.98	1.85
Lone Star Gas Co., Dallas	14,789.30	2.10
Louisiana Oil Refining Corp., Shreveport, La.	34,014.17	1.75
Lewis Oil Co. and National Refining Co., Pittsburgh, Pa.	51,780.74	1.94
Lewis Oil Co., Pittsburgh, Pa.	2,586.92	1.79
Letwin, Sam, Breckenridge	1,242.28	2.03
Lucey Petroleum Co., Dallas	32,899.53	1.97
Lomax, Thornton, Jr., Wichita Falls	15,621.09	2.17
Lebow, M. & Simon, Tulsa, Okla.	8,324.32	1.85
Lytle Oil Association, Lytle	423.56	1.37
Lucky Six Oil & Gas Co., Bangs	624.29	1.10
Lay Oil Co., Cisco	1,695.84	2.12
Little, Wm., Breckenridge	958.56	1.98
Luckey & Barkley, Rockdale	463.27	1.99
McCamey, James, Fort Worth	8,641.94	....
McDabb Oil Co., Wichita Falls	2,476.03	2.12
McLester Oil Co., Ranger	5,282.00	2.25
McLester Oil Co., Breckenridge	7,811.00	1.98
McNallen & Griffin, Tulsa, Okla.	5,798.58	1.91
McEwan, J. P., Trustee, Fort Worth	2,375.23	2.03
McMan Oil & Gas Co., Tulsa, Okla.	77,671.14	2.03
McCarty Oil Co., Wichita Falls	75,314.26	2.20
McGlothlin, L. W., Burkburnett	1,358.24	1.92
McDonald, A. C. & M. C., Putnam	3,375.32	2.19
McMurray, T. C., Rec. (North American Oil & Refining Co.), Dallas	5,833.11	2.05
McClure & Sons, Iowa Park	592.49	2.11
McCullough, Everett, Rec., Wichita Falls	4,402.32	1.77
McNamara Oil Co., Beaumont	3,710.83	1.61
McBride, W. C., Inc., St. Louis, Mo.	3,919.83	1.62
McCarthy (Well), Galveston	324.14	1.93
McCarter, R. C., Cisco	2,057.40	2.06
McDaniel, E. R., Cisco	574.58	2.22
Moore, Clifford et al, Wichita Falls	13,969.18	2.13
Murphy Oil Co. of Pennsylvania, Philadelphia, Pa.	962.56	1.00
Mirando Oil Co., Laredo	459.83	1.00
Miami-Laredo Oil Co., Laredo	1,495.96	1.07
Meredith, J. D., Moran	928.80	1.73
Mann & Forbes, Graham	3,207.00	2.28
Mohegan Oil Co., Mohegan Lake, N. Y.	462.04	1.87
Mid-Kansas Oil & Gas Co., Findlay, Ohio	127,136.30	2.07
Minerva Petroleum Co., Minerva	5,037.72	....
Moran, J. J., Wichita Falls	1,691.11	2.13
Montgomery, Rea-Montgomery, Sedwick	3,233.01	2.07
Mann & Cosmopolitan Oil Co., Wichita Falls	2,703.52	2.10
Maskell & Maskell, Humble	3,680.00	1.55
Martin Petroleum Co., Humble	4,561.61	....
Muse & Robertson, Wichita Falls	15,070.67	2.16
Magnolia Petroleum Co., Dallas	1,617,239.92	1.98
Mitcham, G. P., Fort Worth	527.41	....
Marton, A. D., Bartlesville, Okla.	1,192.97	1.94
Minntex Oil Corp., Wichita Falls	770.19	2.42
Marsalis Bros., Humble	4,424.97	1.50
Monarch Oil & Refining Co., Houston	34,626.01	1.43
Mecom Oil Co., Houston	47,544.00	1.55
Margay Oil Corp., Tulsa, Okla.	5,782.36	2.29
Marnet Oil & Gas Co., New York, N. Y.	4,502.92	1.77
Mennis, G. W., Wichita Falls	3,985.99	2.22
Moore, F. L., Trustee, Tulsa, Okla.	5,262.76	2.13
Multiple Oil Co., Wichita Falls	11,040.92	2.20
Marland Oil Co. of Texas, Fort Worth	64,554.61	1.38
Mid-Continent Petroleum Co., Tulsa, Okla.	30,645.25	2.07
Maer & Staniforth, Wichita Falls	39,488.74	....
Martin & Harrison, Houston	5,756.45	1.59
Minor Oil Co., Beaumont	11,915.85	1.59
M. & V. Oil Co., Wichita Falls	2,607.95	2.26
Madison Oil & Gas Co., Fort Worth	1,612.44	2.24
Moore, N. A., Eastland	9,646.28	2.19
Moss & Keys, Mexia	1,673.81	1.87
Moore, Frank L., Tulsa, Okla.	842.97	1.98
Morrison, St. John & Kleiner Bros., Cisco	13,634.42	2.16
Medina Oil & Gas Association, San Antonio	426.94	1.64
Mogul Oil Corp., Eastland	297.54	1.92
Mutual Oil Consolidated, Fort Worth	2,688.18	2.19
Mook Texas Oil Co., Fort Worth	13,601.78	2.27
Mitchell, Amos J., Wichita Falls	81.32	2.20
Martin Bros., Glen Ridge	1,763.95	1.45
Mitchell, Mrs. Sue (Lease), Wichita Falls	326.12	2.23
Murchison & Fain Oil Co., Wichita Falls	318,766.96	2.23
Moutray Oil Co., Cisco	8,249.78	2.25
Meridian Petroleum Corp., Tulsa, Okla.	6,240.19	2.26
Mendenhall, L. F., Oil Co., Cross Cut	7,518.83	2.32
Magee & Stipe, Electra	7,199.34	2.18
Moss & Keeling, Mexia	9,936.00	2.18
Matodor Oil & Gas Co., The, Quanah	600.00	2.18
Moore & Henderson, Tulsa, Okla.	1,060.06	2.00
Mexican Oil Co., The, Laredo	737.76	1.00
Middleton Tex. Oil Syndicate, Eastland	907.14	1.83
Midco Oil Corp., Tulsa, Okla.	852.81	1.86
Mills & Garrity, Corsicana	1,606.37	1.70
Mary Elizabeth Oil Co., Dallas	21.20	2.00
Maben Oil Corp., Wichita Falls	1,105.78	....
Navarro Oil Co., Houston	160,410.20	1.94
Nueva Oil Co., Laredo	3,592.77	1.00
Number Nine Oil Corp., Tulsa, Okla.	4,954.75	2.18
Nine Hundred Oil Co., Burkburnett	2,841.55	2.19
Noble Oil & Gas Co., Tulsa, Okla.	5,773.63	2.07
Newblock Oil Co. of Texas, Tulsa, Okla.	9,243.22	2.30
National Supply Co. of Texas, Toledo, Ohio	594.82	1.77
Norday Oil Co., Wichita Falls	17,624.77	2.29
Norba Oil Co., Wichita Falls	3,846.31	2.27
Nickel, G. W. et al, Putnam	5,916.64	....
National Petroleum & Refining Co., Wichita Falls	7,921.88	2.13
Newblock Oil Co. of Texas and A. C. Smith, Tulsa, Okla.	399.99	2.36
Norman Oil Co., Wichita Falls	9,013.26	2.25
New Doman Oil & Gas Co., Inc., Pittsburgh, Pa.	14,128.47	1.80
Norman Oil Co., Wichita Falls	5,045.04	2.27
Noack Oil Co., Rockdale	4,119.56	2.16
Nortex Drilling Co., St. Louis, Mo.	459.20	2.14
Newblock Oil Co. of Texas, Tulsa, Okla.	3,896.85	.98
National Oil Co., San Antonio	1,414.39	1.51
Netherton & Heydrick, Truste, Wichita Falls	1,212.12	2.27
O'Neall Well No. 1, Colorado	427.42	1.32
Omliak Oil Co., Spokane, Wash.	571.00	1.59
Oakwood Oil Syndicate, Fort Worth	3,756.60	2.04
Oriental Oil Co., Dallas	3,528.49	2.05
O'Donohoe-Gates Drilling Co., Wichita Falls	28,845.70	2.18
Owenwood Pool No 3, C. A. Wood, Trustee, Fort Worthh	16,806.19	1.96
Orth, Thos. R. T., Wichita Falls	288.70	2.02
Osage Development Co., Bartlesville, Okla.	6,111.28	1.05





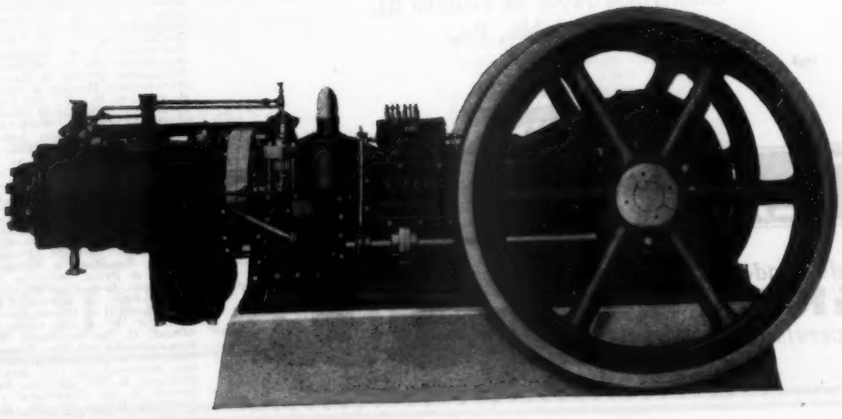
ENGINES

UTED BY

IE

L SUPPLY

ANIES



'NOTHING FINER FOUND—ABSOLUTELY ROUND'

East or West-- Atlas Valve Balls Perform the Best

ATLAS Valve Balls for Working Barrel Valves need no introduction to the oil industry. From the original Pennsylvania fields to the new era in the Golden West, "Atlas" has become synonymous for long-life under the hardest working conditions.

What differentiates Atlas Valve Balls from all others? They are made of the highest grade chrome alloy steel, uniformly hardened throughout and correct in sphericity to within plus or minus 1/10,000.

But more than these basic qualities is the background of years of engineering research and experience in the manufacture of a quality product which is the choice of leading producers—because it has proved the cheapest investment in the long run! Just ask the supplier for them on your next call.

Atlas Ball Company

Glenwood Ave. at Fourth St.
Philadelphia, Pa.

1498

Name and Address—	Barrels	Av. Price
Oil Production Co., Houston	244.33	1.25
Overby, J. D., Iowa Park	1,344.01	2.20
Oil Investment Co., Wichita Falls	12,844.01	2.13
Olney Oil & Refining Co., Olney	2,448.16	2.24
Orange Petroleum Corp., Orange	171,396.43	1.33
Old Colony Oil Co., Dayton	1,254.83	1.50
Overby, W. W. (Lease), Wichita Falls	756.10	2.06
Offenbacher, Emile, Trustee, Tulsa, Okla.	46.90	2.07
Offenbacher, Emile, Tulsa, Okla.	447.75	2.08
Old Ocean Oil Co., Kansas City, Mo.	9,955.05	1.34
Ohio Somerset Oil Co., San Antonio	2,394.52	1.40
Ozark Petroleum Co., San Antonio	1,301.71	1.66
Owens Petroleum Co., Cameron	1,491.91	2.00
Owens Refining Co., Cameron	168.47	2.00
Odell & Lawton, Vivian, La.	1,895.38	2.05
Odell & Lawton, Vivian, La.	1,298.52	2.05
Powell, J. L., Wichita Falls	676.99	2.14
Patten, Nannie S., Canadian	3,000.00	1.16
Parry Oil Co. of Texas, Inc., Fort Worth	1,877.74	2.12
Phillips Petroleum Co., Bartlesville, Okla.	385,326.55	2.33
Pennok Oil Corp., Tulsa, Okla.	23,329.33	1.96
Planet Petroleum Co., Bartlesville, Okla.	55,210.89	2.25
Price, Russell Co., Ranger	10,689.00	2.23
Patterson, W. A., Fort Worth	2,671.64	2.30
Pace & Ward, Breckenridge	1,755.58	1.90
Prairie Lee Production Co., San Antonio	23,008.16	1.05
Petroleum Producers Co., Wichita Falls	103,414.26	2.14
Penn, Robert L., Dallas	14,889.82	2.16
Palmer, Freddie, Oil Co., Rockdale	395.03	1.79
Paggi Brothers Oil Co., Beaumont	12,623.84	1.58
Plains Oil Corp., Amarillo	1,648.78	1.74
Prescott Phoenix Oil & Gas Co., Wichita Falls	2,155.78	2.00
Pois & Kruger, Trustee, Wichita Falls	10,346.62	2.15
Plains Production Co., Wichita Falls	43,529.94	2.15
Pure Oil Co., The, Columbus, Ohio	1,967,839.47	2.01
Powers Production Co., Houston	3,761.00	1.74
Pioneer Oil, Gas & Refining Co., Danville, Ill.	2,273.60	1.71
Porter & Barnard, Wichita Falls	386.36	2.35
Porter, B. E. & Co., Wichita Falls	58.49	2.26
Palmer & Chenault, Wichita Falls	401.63	2.19
Pennant Oil & Gas Co. and G. K. Finley, Tulsa, Okla.	1,951.03	1.61
Pender Producing Co., Denton	29,929.38	....
Perkins, J. J., Wichita Falls	5,325.84	2.15
Perkins & Cullum, Wichita Falls	58,105.24	2.22
Pierce Petroleum Corp., New York, N. Y.	3,658.82	2.26
Phillips & Milam, Chelsea, Okla.	194.04	2.03
Prairie Oil & Gas Co., Independence, Kans.	479,258.87	2.19
Philp Brothers, Beaumont	2,214.78	1.56
Parkersburg Drilling Co., Cisco	15,830.88	2.03
Pinto Oil Co., Mineral Wells	471.04	1.00
Producers Supply & Tool Co., Marietta, Ohio	1,562.11	2.00
Panhandle Refining Co., Wichita Falls	100,091.81	2.13
Petroleum Development Co., New York, N. Y.	1,271.02	2.03
Paggi, Charles & Co., Beaumont	5,431.62	1.58
Phillips Oil Co., San Antonio	1,779.60	1.05
Priddy, Walter M., Wichita Falls	17,307.53	2.06
Pitzer & West, Breckenridge	14,360.50	2.03
Progressive Production Co., Kansas City, Mo.	7,266.76	2.18
Pomona Mutual Oil Syndicate, Pomona Calif.	5,306.18	2.28
Paraffine Oil Co., The, Houston	12,900.06	1.57
Pomona-Texas Oil Syndicate, Pomona, Calif	142.88	1.77
Pois, M., Trustee, Wichita Falls	473.73	2.18
Preston Oil & Gas Co., Brownwood	520.00	1.94
Petrol Howard Co., Wichita Falls	1,395.60	2.33
Prescot-Phoenix Oil & Gas Co., Muskogee, Okla.	377.04	....
Payne, F. G. et al, Wichita Falls	1,151.62	2.24
Pipin & Bennet, Trustees, Easthampton, Mass.	182.98	1.41
P. & M. Oil Co., Shreveport, La.	147.48	2.25
Pyron, Bob, Oil Lease, Valley Mills	103.50	1.25
Patton, Nannie S. (Survey), Canadian	1,900.19	1.19
Primrose Oil Co., Sour Lake	1,393.41	1.59
Prather, Ed, Special, Houston	219.10	2.08
Pivoto, M. E., Sour Lake	6,084.54	1.65
Quincy Oil Co., Electra	251.84	2.16
Quaker Oil Co., Wichita Falls	5,199.39	2.00
Quakins Petroleum Co., The, Frankell	13,436.00	2.27
Rhthada Oil Co., Ardmore, Okla.	4,154.96	2.15
Ryan Petroleum Corp., Bartlesville, Okla.	56,691.10	2.27
Rolyat Production Co., Houston	5,461.76	1.45
Robinson, J. B., Attorney, Sour Lake	711.01	1.56
Roamer Oil Co., Wichita Falls	1,918.59	1.90
Ray & Massie, Wichita Falls	74,284.51	2.23
Ray Featherstone Oil Co., Inc., Wichita Falls	7,290.21	2.19
Roxana Petroleum Corp., St. Louis, Mo.	170,999.74	2.03
Raney, R. W., Breckenridge	2,465.00	1.93
Rhodes & Highers, Breckenridge	23,060.63	2.18
Regna Oil Co., Saratoga	6,284.26	1.38
Rockdale Oil Co., Minerva	646.96	1.94
Ruby Oil Co., Minerva	2,380.29	....
Ruyle Farm Oil Co., Wichita Falls	9,975.54	2.26
Rayzor, J. P., Wichita Falls	182.29	2.24
Rockwell, J. A. & Co., Warren, Pa.	4,505.17	1.99
Ross Segunda Oil Co., Laredo	2,441.85	....
Ross Amigos Oil Co., Laredo	6,966.04	....
Rio Grande Petroleum Corp., Houston	10,836.87	1.05
Rydal Oil Corp.-Coursen Matches, San Antonio	5,495.14	1.25
Rydal Oil Corp., San Antonio	38,256.53	1.35
Roeser & Pendleton, Inc., Breckenridge	13,726.17	1.90
Rio Bravo Oil Co., Houston	272,100.92	1.77
Riner & Bailey, Wichita Falls	107,463.83	2.34
Robinson, Arthur D., Dallas	7,056.73	2.28
Rountree-Lee Oil Co., Rockdale	1,899.12	1.99
Rountree, White & Simpson, Rockdale	6,587.16	2.26
Ramming & Saunders, Wichita Falls	5,955.72	2.33
Rubsam & Hunter, Wichita Falls	2,401.36	2.24
Ranger Gulf Corp., Tulsa, Okla.	9,126.87	2.01
Rycade Oil Corp., Houston	138,355.44	1.40
Rutledge, W. E., San Antonio	416.90	....
Rowan, A. H. et al, Corsicana	4,540.28	1.97
Rutledge, W. E., San Antonio	769.06	....
Rowe, M. D., Wichita Falls	3,705.43	2.07
Rosell & Co., Breckenridge	4,600.23	....
Russell Sanderson Oil Co., Fort Worth	1,629.22	2.24
Robert Oil Corp., Breckenridge	33,349.98	2.13
Rocky River Oil Co., The, Wichita Falls	720.60	2.05
Rosenberg, Jacob, Tulsa, Okla.	247.34	2.07
Ramming, Henrietta C., Wichita Falls	....	....
Reliance Oil Co., Houston	686.40	1.61
Root, C. M. et al, Eastland	3,104.21	1.77
Root Rhodes, et al, Eastland	30,369.00	2.36
Root & Rhodes, Eastland	6,258.00	2.09
Republic Production Co., Houston	673,343.60	1.65
Reclamation Co., The, Fort Worth	20,673.40	1.97
Robertson, J. A., Pampa	450.00	1.55
Ramming, W. F., Wichita Falls	42.06	2.23
Ramming, Staley & Ramming, Wichita Falls	962.33	2.42
Rambaugh, Reeder & Cook, Wichita Falls	1,313.25	1.53
Ramming, R. W., Wichita Falls	14.58	2.00
Rountree & Simpson, Rockdale	337.79	2.06
Ross, Dwight M., Wichita Falls	1,722.60	2.19
Rentex Oil Co., San Antonio	6,464.23	1.66
Reinhart, M. J., Trustee, Oklahoma City	1,143.43	2.20
Schauffner-Wilson et al, Cross Plains	10,220.88	2.17
Superior Oil Producing Co., Lexington, Ky.	2,920.69	2.92
Somerset Crude Oil & Refining Co., San Antonio	6,453.72	1.71
Schulz & Pois, Wichita Falls	3,492.04	2.35
Strawn Petroleum Co., Denver, Colo.	8,861.68	2.24
Samuel West & McCandless, Robinson, Ill.	585.78	1.93
Smoot, George A., Wichita Falls	388.06	1.65
Scarbrough, W. A., Burkburnett	2,933.15	1.80
Shackelford Oil Co., Putnam	6,070.00	2.25
Staley, Langford & Wynne, Wichita Falls	882.48	2.00
Staley & Fritz, Wichita Falls	7,508.08	2.00
Staley, J. I. & Co., Wichita Falls	10,090.62	2.00
Sitrin, Sam. & Morris, Tulsa, Okla.	427.90	2.00
St. Louis Oil & Development Co., Wichita Falls	727.76	2.15
Stone, F. W. & Co., Cross Plains	1,653.27	2.38
Sturm, H. L., Ardmore, Okla.	240.97	1.96
Summerfield Oil Co., Tulsa, Okla.	332.53	2.01
Stratton & McLendon Co., Waco	488.00	1.35
San Barnard Oil Co., Beaumont	4,553.46	1.80
Skinner, E. W., Oil Co., Saratoga	5,937.58	1.55
Speed, C. D., Corsicana	169.48	1.70
Stratton Ridge Oil Co., Freeport	306.00	1.50
Stovall, E. C., Graham	2,203.00	2.13

Oil Well Lines That Deliver Service

THE right combination of strength, flexibility and elasticity for its purpose—that's what Wickwire Spencer puts into every strand of wire rope.

Careful study of requirements in the oil fields, together with many actual tests on the job, established our specifications. Careful selection of the steel from our own mills, and complete control of every step in manufacture, from the iron ore to the finished product, enables us invariably to meet these specifications.

Drilling lines, sand lines, casing lines, pumping lines, or torpedo lines—all are dependable if they are Wickwire Spencer Lines.

WICKWIRE SPENCER STEEL COMPANY
41 East Forty-second Street, New York

Carried at the Following Points for the Petroleum Industry

Augusta, Kans.
Bradford, Pa.
Breckenridge, Texas.
Bristow, Okla.
Buffalo, N. Y.
Butler, Pa.
Cleveland, Okla.
Cromwell, Okla.
Cushing, Okla.
Emlenton, Pa.
Holdenville, Okla.
Hominy, Okla.
Knox, Pa.
Marland, Okla.
Morrison, Okla.
New Martinsville, W. Va.
Okemah, Okla.
Okmulgee, Okla.
Pawhuska, Okla.
Ponca City, Okla.
Shidler, Okla.
Tulsa, Okla.
Vernon, Texas.
Washington, Pa.
Waynesburg, Pa.
Webb City, Okla.
Weleetka, Okla.
Wetumka, Okla.
Woodsfield, Ohio.
Winfield, Kans.
Yale, Okla.

Eastern Distributors

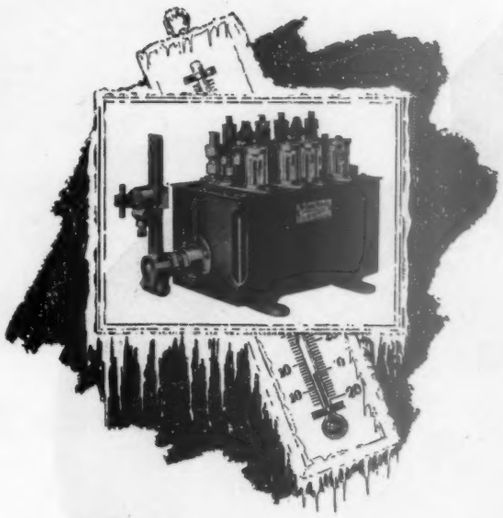
New Martinsville Supply Co., New Martinsville, W. Va.
A. F. Keck & Co., Butler, Pa.
H. B. Mitchell Co., Emlenton, Pa.
Clarion County Machine Co., Knox, Pa.
Lloyd Smith Co., Bradford, Pa.

Western Distributors

Murray Tool & Supply Co., Tulsa-Cleveland, Okla.
Federal Supply & Machine Co., Augusta and Winfield, Kans.
Atlas Supply Co., Fort Worth, Texas

WICKWIRE SPENCER *PRODUCTS*

Positive Lubrication in Freezing Weather



WHEN the thermometer drops to zero and the oil in the pipe lines congeals, it is human nature to forget the usual oiling or to neglect to give it the added attention required at this time. The result is that scored cylinders and frozen bearings prevail, tying up production.

Cold weather does not affect the operation of McCord Lubricators—they will pump any kind of oil against any pressure up to 2000 pounds, requiring no attention other than the occasional filling of the reservoir.

McCord Lubricators on your pumping and drilling units are the best assurance for continuous production during this Fall and Winter season, that can be purchased.

Your nearest National Supply Company branch carries McCord Lubricators

McCord
force feed
Lubricators
Standard of the Oil fields

McCord Radiator & Mfg. Co., Detroit
LUBRICATOR DIVISION

Name and Address—	Barrels	Av. Price
Sheffield, Telschow & Conkling, Houston	1,000.70	1.60
Shaw & Rathke, Wichita Falls	75,988.88	2.26
Staley, J. A., Wichita Falls	7,538.48	2.28
Shertzer Brothers, Dewey, Okla.	10,900.57	....
Somerset Oil Co., San Antonio	1,677.39	....
Silurian Oil Co., The, St. Louis, Mo.	4,372.45	2.20
Shappell, T. O., & Sons, Wichita Falls	4,790.38	2.19
Saratoga Oil Co., Wichita Falls	5,197.90	2.22
Shappell Oil Co., Wichita Falls	67,788.20	2.21
St. Marys Oil & Gas Co., St. Marys, Va.	13,695.65	2.11
Stephens Oil Co., Sour Lake	767.78	1.61
Shemen Oil & Gas Co., Pittsburgh, Pa.	176.18	2.01
Swicegood, F. L., Trustee, Eastland	325.32	2.06
Stull, R. O., Wichita Falls	19.08	2.27
Saunders, John R., Wichita Falls	42.06	2.23
Sprawls, Harwell & Cook, Abilene	1,318.86	2.22
Sessions, L. P., Rockdale	674.88	1.87
Shade & Whittiker, Sweetwater	648.84	2.25
Seybert Brothers & Barger, Mooringsport, La.	2,667.67	1.95
Schlicher Oil Co., Beaumont	618.72	1.50
Stidham & Thrasher, Electra	134.61	2.20
Senter, E. G., Jr., Dallas	180.23	1.85
Stout Petroleum Co., Brownwood	69.50	1.71
Staley Mashburn Oil Co., Wichita Falls	282.19	....
Sircovich & Thomas, Houston	3,696.19	1.38
Standifird Brothers, Iowa Park	1,500.38	1.72
Standard Oil Land & Leasing Co., Electra	407.46	2.23
Stella Oil Co., Beaumont	10,259.96	1.58
Summerfield Oil Co., Tulsa, Okla.	411.27	2.17
Southern Drilling & Production Co., Bay City	623.42	1.50
South Vernon Oil Co., Vernon	4,767.76	2.10
Snyder & Smith, Putnam	232.49	2.06
South Stephens Oil Syndicate, Fort Worth	288.54	2.04
Smith & Snyder, Pittsburgh, Pa.	1,846.33	2.24
Southwestern Petroleum Co., Tulsa, Okla.	478.38	2.05
Schott Oil Co., Laredo	5,113.64	1.06
Smith, E. L., Oil Co., Mexia	137,612.68	2.16
Shallow Oil Co., Denver, Colo.	16.00	1.80
Southern Exploration Co., Houston	7,699.20	1.70
Stroube & Stroube, Corsicana	179,291.41	2.06
Sun Oil Co., Dallas	597,821.50	1.86
Sinclair Oil & Gas Co., Tulsa, Okla.	67,378.68	2.17
Silk, W. W., Wichita Falls	26.62	1.87
Sixty Six Oil Co., Wichita Falls	9,516.87	2.26
Sunray Oil Corp., New York, N. Y.	17.92	1.50
Snider, C. W., Wichita Falls	3,360.62	2.36
Sunny Jim Oil Co., Tulsa, Okla.	9,665.12	1.28
Southern States Lease & Prod. Co., Los Angeles, Calif.	3,812.82	1.70
Seaboard Oil & Gas Co., Dallas	37,705.24	2.15
States Oil Corp., Eastland	72,373.49	....
Stock, H. L., Cisco	2,987.52	2.19
Steele, Charles, Moran	537.41	1.68
San Balt Petroleum Co., San Antonio	2,544.75	1.09
Sink, Joel, Corsicana	272.00	....
Southern Petroleum Co., Houston	10,147.48	1.57
Shannon & Weaver, Fort Worth	860.49	1.35
Slick, T. B. et al, Oklahoma City	14,846.94	2.35
Swensondale Oil Co., Caddo	21,412.10	1.96
Sigler Oil Co., Inc., Wichita Falls	3,555.13	1.82
Shaw, Fox & Adams, Burkett	5,313.22	1.83
Sunshine Consolidated Oil Co., Wichita Falls	17,084.78	2.27
Sunshine Sheldon Drilling Co., Wichita Falls	20,692.12	2.21
Superior Oil Co., Orange	8,844.26	1.48
Snowden & McSweeney Co., New York, N. Y.	70,542.72	2.21
Simms Oil Co., Dallas	539,188.56	2.12
Staley & Wynne, Wichita Falls	99,257.93	2.00
Sinclair Oil & Gas Co., Houston	205,021.93	1.60
Skelly Oil Co., Tulsa, Okla.	93,889.01	1.81
Tidwell, R. V., Trustee Bowers Lease, Graham	1,464.68	2.05
Tidwell, R. V., Trustee Castello Lease, Graham	1,228.32	2.11
Tidwell, R. V., Trustee Kisinger Lease, Graham	1,714.68	1.93
Tidwell, R. V., Trustee McLaren Lease, Graham	781.08	1.96
Texas Petroleum Development Co., Cameron	7,949.97	2.06
Texokan Producing Co., Coffeyville, Kans.	8,463.26	2.18
Trinity Royalties Co., Denver, Colo.	32,105.74	1.34
Tucker & Fox, Dallas	23,951.42	2.00
Tucker, C. A., Dallas	12,849.16	2.02
Texas Standard Oil Co., Houston	1,826.54	2.03
Talley, Oscar, Trustee, Burkburnett	338.00	1.91
Tolbert, Johnnie, Oil Co., Midlothian	2,879.00	2.10
Taylor-Sibley Syndicate, Dallas	2,336.72	2.24
Texas Consolidate Oil Co., San Francisco, Calif.	7,334.45	1.93
Texas Plains Syndicate, Chicago, Ill.	409.44	1.90
The Texas Co., Houston	2,760,166.19	1.83
Texas Oil Corp., Dallas	193.96	1.82
Texota Petroleum Co., Electra	681.24	2.28
Thomas, M. J., Somerset	371.17	1.79
Tripplehorn, J. W. and D. R., Fort Worth	3,219.20	2.09
Theis Oil Co., Sour Lake	4,759.06	1.60
Two Republics Oil & Gas Co., Laredo	9,466.14	1.05
Trans-Bay Oil Co., Galveston	1,389.00	....
Texas Electric Co., Columbus, Ohio	455.34	2.22
Thomas Mack, Wichita Falls	158.93	1.94
Texas Exploration Co., Houston	16,836.77	1.50
Thomasson, E. M., Trustee, Denver, Colo.	17,614.57	....
Texas Buffalo Oil Co., San Antonio	984.34	1.53
Tillery, L. J., Oil Co., Inc., Beaumont	8,345.68	1.63
Texas Development Co. et al, Eastland	3,202.85	1.72
Tholl Oil Co., Beaumont	1,570.46	2.08
T. & P. Coal & Oil Co. (other companies), Thurber	133,402.20	2.08
Tannehill, L. B., Albany	4,932.40	1.93
Texas & Pacific Coal & Oil Co., Thurber	230,872.74	1.88
Texas Fidelity Oil Corp., Louisville, Ky.	38,381.36	2.28
Trinity Production Co., Wichita Falls	264.09	2.08
Texas Oil Producing Co., Dallas	207.95	1.62
Thaxton, W. H., Austin	275.32	1.79
Texas Unity Oil Co., Dallas	16,715.48	2.16
Timblin, W. E., Wichita Falls	198.37	2.18
Tidwell, R. V., Receiver, Graham	893.98	2.02
Texo Oil Co., Laredo	5,327.74	1.00
Tidwell, R. V., Trustee, Whittenberg & Mahaney, Graham	5,000.00	2.00
Thompson, J. L., Ranger	5,965.08	2.11
Tucker & Langford, Wichita Falls	78,140.74	2.13
Transcontinental Oil Co., Tulsa, Okla.	13,758.69	2.01
Teatsorth, L., et al, Eastland	4,944.57	2.19
Thompson & McKinnis, Ranger	1,461.72	2.20
Texas Southern Oil & Development Co., San Antonio	2,743.23	1.80
Thompson Oil Corp., Ranger	8,409.10	2.17
Triangle Oil Co., Wichita Falls	1,140.48	2.44
Tidal Oil Co., Tulsa, Okla.	194,160.74	1.99
Texhoma Oil & Refining Co., Wichita Falls	432,882.03	2.21
Turner & Clayton, Inc., Eastland	761.44	1.83
Tyson Oil Co., Sour Lake	1,095.82	1.57
Travis Oil Co., Fort Worth	2,381.30	....
Tidal Western Oil Corp., Tulsa, Okla.	2,661.84	1.86
Tidal Osage Oil Co., Tulsa, Okla.	2,658.61	1.96
Texon Oil & Land Co. of Texas, Big Lake	1,124.95	2.04
Three Rivers Oil Co., Inc., San Antonio	6,165.95	.95
U. S. Texas Oil Corp., Dallas	12,563.61	1.90
Uncle Tom Oil Co., Minerva	1,516.77	....
United North & South Oil Co., Luling	1,473,465.30	1.13
Underwood Drilling Co., Wichita Falls	7,974.05	2.35
Unity Oil Co., Beaumont	14,664.03	1.63
United Oil & Fuel Co., Philadelphia, Pa.	1,177.24	1.60
Upham Gas Co. of Texas, The, Mineral Wells	2,076.06	2.42
Val Verde Oil Co., Del Rio	2,996.00	1.68
Vacuum Oil Co., Houston	104,512.03	1.61
Virginia Oil Association, Fort Worth	3,717.86	2.22
Van Cleave Trust, Wichita Falls	2,001.23	2.35
Valley Oil Co., Wichita Falls	2,298.16	....
Wilcox, H. F., Tulsa, Okla.	2,787.21	1.48
Woodruff & Greene, Wichita Falls	765.24	2.03
Wilson Broach Co., Beaumont	18,462.45	1.68
Wichita Production Co., Wichita Falls	24,637.62	2.24
Wm. R. Watkins, Receiver (Buffalo Texas Oil Co., Wichita Falls)	1,267.88	2.15
Williams & Hofmeir, Dallas	2,570.71	1.93
Wichita Petroleum Co., Tulsa, Okla.	6,705.04	2.13
Wood, G. C. et al, Wichita Falls	10,212.00	2.24
Why Not Oil Co., Inc., Mexia	47,850.65	2.15
Wilcox, H. F., Tulsa, Okla.	3,298.79	1.39
Whitehill, E. F., Tulsa, Okla.	8,488.91	2.26
Western Oil Sales Corp., Tulsa, Okla.	2,021.90	2.32
Weller, J. S., Mooringsport, La.	332.38	2.09
Wittmer Property Trustees, Pittsburgh, Pa.	13,792.10	1.80
Waggoner, R. M., Special, Wichita Falls	6,941.38	2.14
Winnipeg Oil Co., Wichita Falls	65,950.18	2.10

Paid for Itself in 10 Months

This Static Condenser installation paid for itself in ten months, and now saves the owner $165.00 each month on his power bill.

Westinghouse static condensers may be installed in locations not suitable for manufacturing purposes, such as platforms, cellars, unheated sheds, or on balconies suspended from the ceiling.

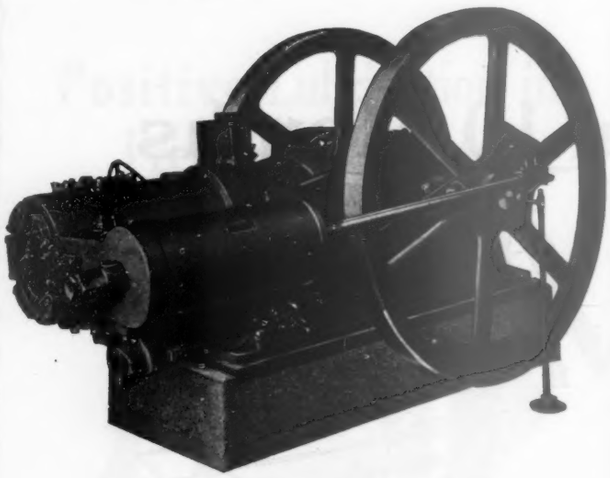
When indoor space cannot be provided, a complete line of outdoor equipments is available for pole or ground mounting.

For more complete data, ask for copies of Circular 1670 and Leaflet 20044-B.

Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania
Sales Offices in All Principal Cities of the United States and Foreign Countries

Westinghouse

X 85593



A NEW REID GAS ENGINE

A NEW Reid Engine — the 35 Horse Power — operating on the same principles which we have so successfully used for over 30 years.

A large shaft, wide bearings, exhaust ports fully water jacketed and many other new features combine to make this engine a worthy addition to the Reid line of oil field machinery.

Its power and flexibility make this engine exceptionally well suited for drilling work.

A one-way, reverse or cut-off type clutch, whichever is desired, can be furnished.

Let us tell you more about this new engine. Write for detailed description.

Joseph Reid Gas Engine Company

Oil City, Pennsylvania, U. S. A.

BRANCHES AND AGENCIES—Marietta, Ohio; Logan, Ohio; Newark, Ohio; Shreveport, La.; Charleston, W. Va.; R. B. Moore, Bolivar, N. Y.; Frick & Lindsay Co., Bradford, Pa., and Kentucky Distributors; S. R. Shoup, 708 Pacific Electric Bldg., Los Angeles, Cal.; Frick-Reid Supply Co., Tulsa, Oklahoma, and Branches, Distributors for Oklahoma, Kansas, Arkansas and Wyoming.

BRANCH SHOP—TULSA, OKLAHOMA

Name and Address—	Barrels	Av. Price
Wonder Oil Co., Inc., Houston	762.62	1.58
Ward, Mrs. Fay R., Dallas	65.08	1.58
Weldon Oil Co., Saratoga	11,452.60	1.15
Watson, M. B., Fort Worth	1,800.00	1.20
Walker, A. C., Wichita Falls	8,570.00	2.33
Weber, Howard (NE¼ B. 83), Bartlesville, Okla.	3,061.42	1.95
Weber, Howard (SW¼ B. 83), Bartlesville, Okla.	3,371.32	2.00
Weber, Howard, (SE¼ of NW¼ B. 83), Bartlesville, Okla.	1,049.24	1.97
Weber, Howard, (S½ of NE¼ B. 88), Bartlesville, Okla.	1,430.14	1.99
Weber, Howard, (N¼ of S½ of SE¼ B. 88), Bartlesville, Okla.	1,642.47	1.99
Weber, Howard, (W½ of NE¼ of SW¼ B. 88), Bartlesville, Okla.	735.58	1.99
Winfree Oil Co., Liberty	28,876.77	1.81
Westerner-Noble et al, Oklahoma City, Okla.	6,253.33	2.12
Weaver & Pois, Wichita Falls	13,693.44	2.05
Walker-Caldwell Producing Co., Breckenridge	7,922.70	2.03
Wilson Drilling Co., Wichita Falls	13,033.26	2.24
Wilson Drilling Co., Wichita Falls	21,673.61	2.10
Wilson Drilling Co., Wichita Falls	8,603.84	2.22
White, P. J. et al, Wichita Falls	39,202.77	2.34
Waite Phillips Co., Tulsa, Okla.	112,947.84	2.12
Wheelock & Collins, Corsicana	115,951.48	2.02
White Eagle Oil & Refining Co., Kansas City, Mo.	9,010.23	2.32
Wickett, F. H., Shreveport, La.	4,432.51	1.19
Warren, L. A., Cisco	2,691.35	1.85
Western Oil Fields Corp., Denver, Colo.	90,160.36	1.89
Witcher, Annie L., Guardian, Wichita Falls	4,151.66	2.53
West, J. F., Cisco	1,601.84	2.02
Westenheimer & Daube, Ardmore, Okla.	781.64	1.90
Walker, P. G., Jr., Tulsa, Okla.	57.63	1.15
Walsh-Sizer-Henchliffe et al, San Antonio	12,657.51	2.00
Winfree Oil Co., Liberty	6,856.77	1.62
Whaley Mineral & Realty Trust, Fort Worth	7,430.06	1.88
West Texas-Refining & Development Co., Oklahoma City, Okla.	11,095.84	1.31
Wichtex Oil Co., Wichita Falls	3,575.56	2.24
West Production Co., Houston	3,113.40	1.60
Woods & Bennett, Humble	5,194.44	1.50
Wakefield, M. F. et al, Cross Plains	2,161.54	1.56
Webb Oil Co., Humble	3,911.07	1.58
Wyatt Oil Co., Sour Lake	846.82	1.50
Wherry & Rambo, Beaumont	1,520.35	1.60
Woodrow Lee Trust, Wichita Falls	86.75	....
Walker, B. S., Breckenridge	4,869.88	1.92
Wallace, Dr. Charles William and wife, Wichita Falls	71,260.32	1.58
Wise & Jackson, Sapulpa, Okla.	1,270.92	3.21
Witherspoon Oil Co., San Antonio	189,267.81	1.99
Worth Oil Co., Wichita Falls	203.40	2.01
Wherry & Langhman, Beaumont	600.99	1.60
Woodburn Oil Corp., Dallas	34,718.41	2.22
Wolf, A. T., & Son, Wichita Falls	1,498.17	2.40
White, James H., Wichita Falls	3,692.87	2.10
Williams, Burt, Wichita Falls	2,246.08	1.99
Witcher & Michel, Wichita Falls	541.84	2.26
Wilson, Lee (Annie Bearden Lease), Wichita Falls	8,655.63	2.11
White, C. N., San Antonio	2,632.21	2.65
Weisman, S., McKinney	82.00	2.17
Watkins, J. A., Wichita Falls	771.18	2.05
Yount Lee Oil Co., Beaumont	131,678.39	1.56
Zadie Belle Oil Co., Mineral Wells	1,031.11	2.32
SUPPLEMENTAL		
Nellis, J. A., Putnam	221.16	2.00
Roberts, M. C., and Summerfield, G., Dallas	214.81	1.35
Bruce, H. J., Wichita Falls	2,117.96	2.25
Booher Oil Corp., Waco	20.00	2.00
Clark, N. F., Wichita Falls	160.48	1.60
Chicago Oil & Land Co., Rockdale	336.88	2.01
Cox, Mitchell & Boyd, Wichita Falls	233.72	1.95
Carter, Roy I., Wichita Falls	4,443.32	2.30
Den Wich Oil Co., Abilene	922.21	2.12
Ferguson, W. R., Wichita Falls	1,155.87	2.19
Foster, Watson & Ferguson, Wichita Falls	596.38	2.14
Hanover Co., The, Wichita Falls	10,756.84	2.02
Hoffman & Page, Eastland	500.12	2.03
Hyde Production Co., Houston	14,238.77	1.78
Japhet, C. B., Houston	1,673.65	1.59
Jones, J. E., Wichita Falls	4,295.22	2.17
Jewett, Frank L., Breckenridge	2,316.92	1.73
Lowry Oil Corp., Wichita Falls	5,288.02	2.17
McLester, Jerome, Cisco	3,600.00	1.94
Moorman, Cull C., Trustee, Ranger	4,365.58	2.12
Moore, C. O., Cross Plains	18,543.36	....
Marshall, L. G., Houston	6,377.33	1.33
Marshall, L. G., Houston	17,646.48	1.35
Milam Production Co., Rockdale	1,378.42	2.08
O'Neil, H. A., Wichita Falls	2,311.73	....
O'Neil, John, Wichita Falls	22,803.32	....
Pope & Wilson, Inc., Oklahoma City	1,658.76	2.40
Ross & Slicker Oil Co., Fort Worth	1,170.56	2.09
Schoolfield, R. E., Wichita Falls	205.45	2.16
Strauss, Allen, Oil Co., Wichita Falls	4,852.05	2.19
Thebedeaux, D. L., Saratoga	448.74	....
West, Bessie M., Houston	4,209.00	1.59
Total	34,065,009.43	.....
Wells, W. G., Trustee, Nacogdoches	742.00	2.00

ARGENTINE PRODUCTION

The petroleum production of the Argentine Government oil wells in the Comodoro Rivadavia district during 1924 is reported officially as 465,724 cubic meters (2,934,062 bbls.), as compared with 365,730 cubic meters (2,304,101 bbls.), in 1923. The output of the Government wells at Plaza Huincul is given as 8,872.2 cubic meters, (55,933 bbls.), in 1924 and 6,900 cubic meters, (43,470 bbls.), in 1923. The total production by the Government oil fields, therefore, amounted to 2,989,995 bbls. in 1924 as compared with 2,347,571 bbls. in 1923. (Oil dealers calculate 6.3 bbls. to 1 cubic meter.) The Government topping plant reports an output of 7,934 cubic meters of refined gasoline and 252 of refined kerosene during 1924 from 76,017 cubic meters of oil treated. In 1923 this plant treated 43,061 cubic meters of oil, producing 3,867 cubic meters of gasoline and 125 of kerosene.

WEST TEXAS WILDCATS

FORT WORTH, Tex., Nov. 28.—Two wildcat wells have just started drilling in northwestern Reeves County, western Texas, that will be watched with more than the usual amount of interest. These wells are across the Pecos River from the territory that has been getting the big wildcat play for the past few months. They are located about 20 miles northwest of the district drilled several years ago by Ira Belle, of Chicago, in which some shallow oil showings were encountered. One of the wells is being drilled by the World Oil Co. and the other by Henry Schooler and associates. Both are being drilled on Texas & Pacic railroad lands. The World well is down about 400 feet and the Schooler well about 300 feet.

OIL EXPOSITION IN LONDON?

The trustees of Crystal Palace in London have announced that they have arranged to hold a Petroleum Exposition in the famous exhibition building in the latter half of April, 1926. They have even borrowed the name of the International Petroleum Exposition and Congress, a Tulsa institution. The announcement says that the whole of the main floor of the Crystal Palace, over 100,000 square feet, will be devoted to the exposition.

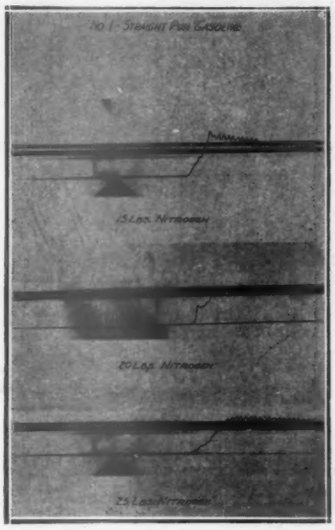
COSDEN DRILLS IN TEXAS

The Chespeake Oil Co., J. S. Cosden, is making preparations for the drilling of two wildcat wells in the extreme western part of Texas, one in Crane County and the other in Ward County. The Crane County well, for which material is being moved in now is to be drilled on the land of W. E. Connell, president of the First National Bank of Fort Worth. The rig is being erected now for the well in Ward County and both tests are to be started within a few days.

BOMB TESTS GIVE INTERESTING DATA

(Continued from Page 62)

inder is admitted in just the quantity required for complete combustion of the fuel. This exact amount of oxygen must be determined by making trial runs and



analyzing the products of the reaction for carbon dioxide, unsaturated hydrocarbons, oxygen, carbon monoxide, hydrogen and methane.

After charging the fuel and oxygen, or in those experiments in which nitrogen is used, the fuel, oxygen and nitrogen, the bomb is slowly heated to about 190 degrees Centigrade. The fuel is completely

vaporized and the reaction mixture becomes homogeneous. The bomb is then cooled to 160 degrees Centigrade and the spark passed to ignite the charge. The pressure-time curve of the explosion is recorded, and the combustion products analyzed.

Thus the concentrations of fuel and oxygen, the initial temperature, and all mechanical conditions are constant in all experiments with a particular fuel. The only variable is the concentration of inert gas, that is, nitrogen.

Oxygen is added until the pressure is 20 pounds gauge, the bomb having previously been swept out with oxygen at atmospheric pressure. In various experiments nitrogen is added so that an additional pressure of 10, 12, 15, 20 or 25 pounds is built up.

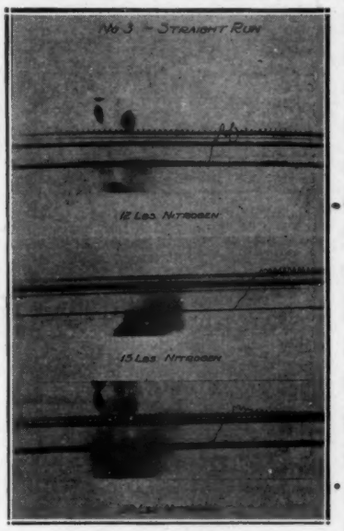
When a series of pressure-time curves, for various proportions of nitrogen added, have been secured for the several fuels comparisons can be made that permit judging the relative anti-knock properties.

The accompanying figures show pressure-time curves for the six fuels examined in the course of the present work.

Interpretation of Curves

Study of the several sets of curves leads to the conclusion that the Dubbs gasolines, made by cracking either fuel-oil residuums, or these residuums blended with gas oil, are better fuels than the straight-run gasolines from the corresponding crude petroleums.

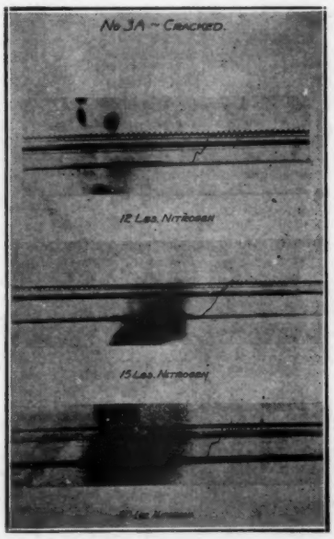
Interpretation of the curves requires experience, but in general it can be said that the amount of nitrogen required to eliminate the peaks, and the amount required to smooth the curves are the most reliable criteria. The shape of the curve, the slope of the rise, and the irregularities of the rise are all useful interpretative guides.



One must distinguish between "peaks" and the regular swings resulting from vibration of the moving parts of the pressure element and optical system.

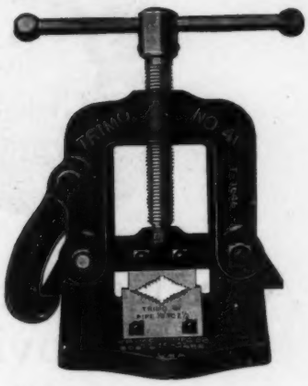
In the following table are shown the results of an effort to reduce the interpretation to an approximate quantitative basis. The less nitrogen required to eliminate the peaks or to smooth the curve the better the fuel.

In the last two columns of the table



are shown estimates of the toluene value and of the probable highest useful compression ratio, that is, compression ratio in an engine of design like that of Ricardo's. These estimates were made by comparing the pressure-time curves for the several fuels with those of similar curves for pure benzene. Ricardo deter-

TRIMO TOOLS



TRIMO
Chain Wrench

TRIMO
Pipe Wrench

TRIMO
Pipe Cutter

Leaders in the OIL FIELD

No line of tools has secured such a strong hold among engineers and mechanics in the Oil Field as TRIMO. Nothing but downright quality plus the masterly design of TRIMO TOOLS could have built up this goodwill. The replaceable feature of all TRIMO parts, makes these tools the most economical in FINAL cost. Nearly 40 years of continuous conscientious tool making, by the same house, is your guarantee that any tool stamped "TRIMO" will satisfy your every need. Insist on TRIMO—accept no other. Sold at all oil and mill supply stores.

Trimont Mfg. Co.
Roxbury, Mass.

America's Leading Wrench Makers for Nearly 40 Years

AJAX·ROPE·C AJAX INC.

Ajax Keeps the Wheels Moving

with

WERWEL

Down in the Oil Country, where roads are impassable and Rope is given severe use,

AJAX SERVICE

and

WERWEL QUALITY

are recognized as supreme in merit

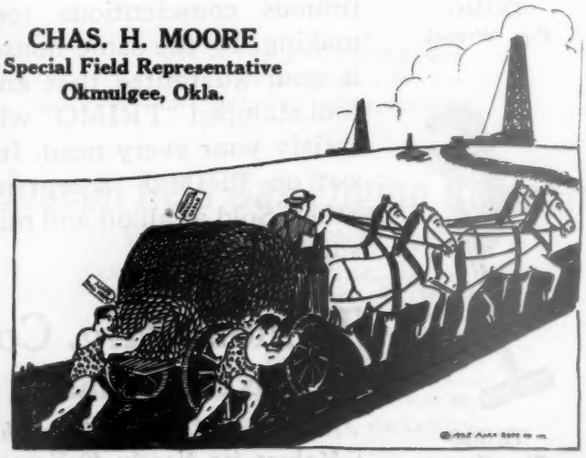
The wheels are kept moving when Ajax delivery facilities and products are used. WERWEL is the finest drilling cable made—A strong statement that we are always ready to prove.

"Strength in Every Length"

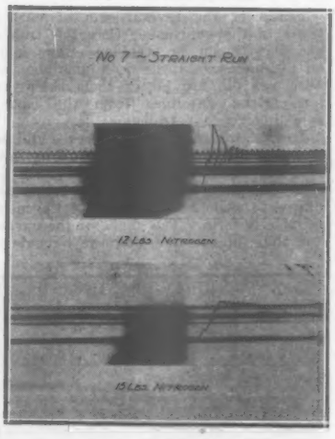
AJAX ROPE COMPANY, INC.
39-97 LIBERTY STREET
NEW YORK

R. S. O. LAWSON, President

CHAS. H. MOORE
Special Field Representative
Okmulgee, Okla.



mined the toluene value and highest useful compression ratio for toluene. By assuming a straight-line relationship it is thus possible to correlate the work



with the bomb and Ricardo's work with the engine.

Detailed comment on a number of the pressure-time curves shown would be desirable, but cannot be made at this time. However, it would be noted that the 15-pound nitrogen curve for fuel 3A was made with a too lean mixture. This accounts for the fact that it appears as a better curve than the one for 20 pounds nitrogen.

All in all, the conclusion is inescapable

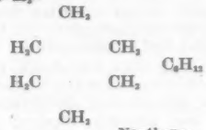
that the cracked gasolines are not only as good but are better fuels than the corresponding straight-run products.

Fuel No.	Pounds of Nitrogen to Eliminate Peaks	Pounds of Nitrogen to Smooth Curve	Ricardo's Toluene Value	Ricardo's Highest Useful Compression Ratio
1	20-lb. gage	25 plus	7	4.95 to 5.2
1A	17 to 18	25 plus	50	6.0 to 6.2
3	Over 20	.....	—20	4.3
3A	20	.....	7	4.95 to 5.2
7	18	Over 20	47	5.9 to 6.0
7A	17	Over 20	65	6.5 to 6.7

STRAIGHT RUN VERSUS CRACKED GASOLINE

(Continued from Page 62)

the olefine hydrocarbons. The chemical symbol for the napthenes is the same as for the olefine hydrocarbons being C_nH_{2n}



C_6H_{12} Cyclo Hexane

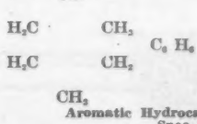
Napthenes

	Spec. Grav. 15.5°C	Boil. Point (760 mm)
Cyclohexane or hexahydro benzene	0.7813	80°C
Methyl cyclohexane	0.7743	101
1,1 dimethyl hexane	0.7843	120
1,2 dimethyl hexane	0.7823	119
1,3 dimethyl hexane	0.7743	120
1,4 dimethyl hexane	0.7723	138
1,1,3 trimethyl hexane	0.7932	140
1,3,4 trimethyl hexane	0.7815	149
1,2,3		147
1,3,5	0.7713	138

Aromatic Hydrocarbons

The aromatic hydrocarbons are cyclic or ring structured and contain eight hydrogen atoms less for the same number of carbon atoms in the molecule compared to the paraffin hydrocarbons. When compared to the olefine and napthene hydrocarbons for the same number of carbon atoms in each molecule, the aromatics contain six less hydrogen atoms.

The aromatic hydrocarbons burn quietly without any detonation under pressure when reacting with air in an automotive cylinder. The chemical symbol for the aromatics is C_nH_{2n-6}



C_6H_6 Benzene

Aromatic Hydrocarbons

	Spec. Grav. 15.5°C	Boil. Point (760 mm)
Benzene	0.8819	80°C
Toluene	0.8689	110
Ethyl benzene	0.8729	135
p-Xylene	0.8698	137
m-Xylene	0.8689	139
o-Xylene	0.8829	142
Propyl benzene	0.8664	158
Mesitylene	0.8654	158-159
pseudocumene	0.8819	164
Propyl Xylene		206-210

Discarded Theories

There are a number of theories in connection with the knocking or detonation of hydrocarbon motor fuels. The pre-ignition theory held sway for some time but now has no force and has been discarded. The theory of the slapping of the piston against the cylinder wall has also had its day in court. The radiation theory of Horning has merit but there is no experimental verification up to the present time. Likewise the interesting electron theory of Wendt has not been proven experimentally.

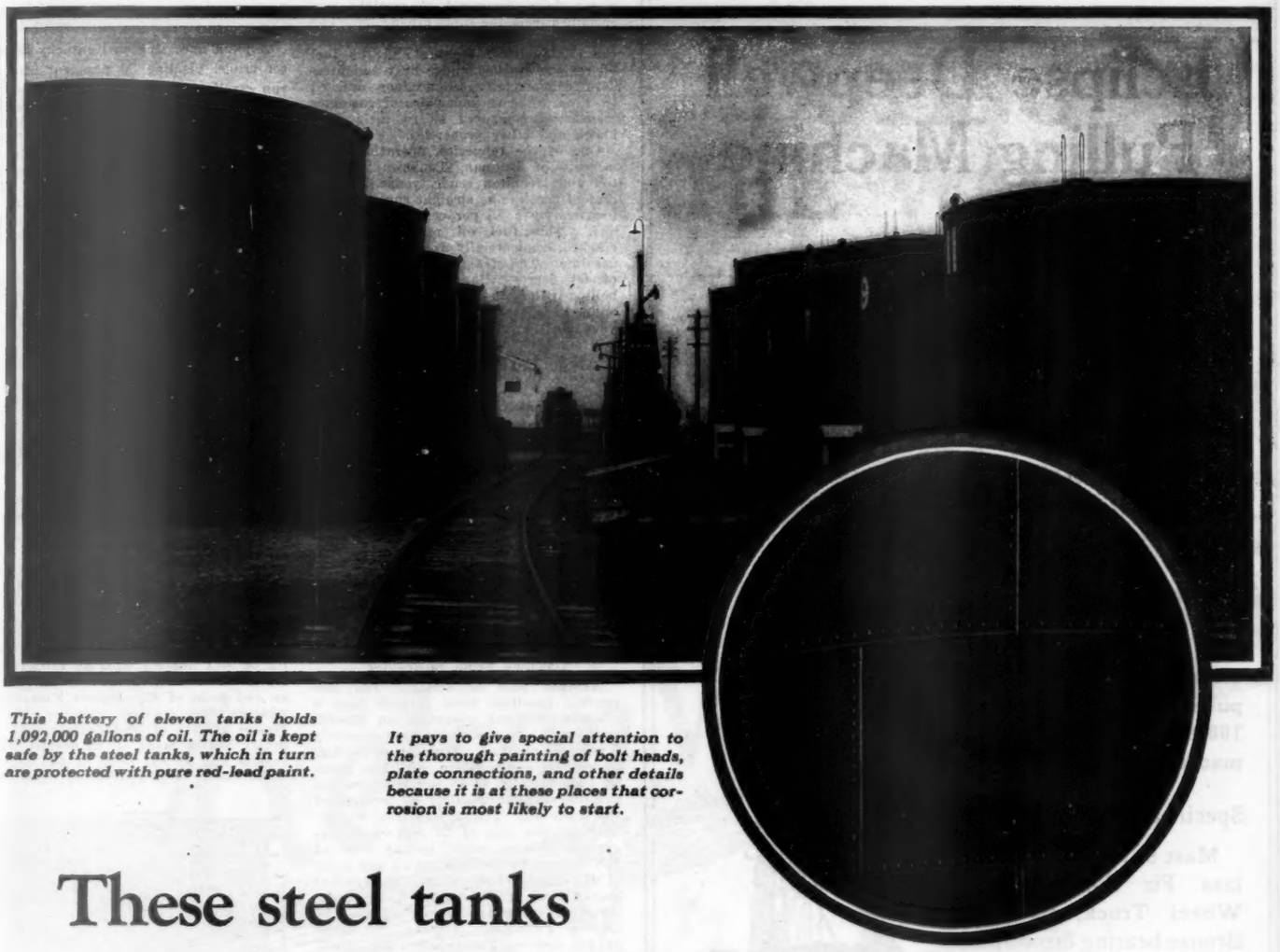
Another theory is that knocking is due to a temperature and pressure wave passing through the cylinder so that the unburned gas ahead of the flame is compressed and raised in temperature, hence auto-ignition takes place, giving an explosion wave resulting in the metallic sound in the motor called knocking.

Midgeley's theory is that knocking is due to the impact of a high velocity, high pressure wave against the cylinder walls and head of the engine.

A simple statement of what apparently takes place in an automotive cylinder is as follows: When a mixture of air and gasoline is passed into an automotive cylinder and is ignited by the spark plug, burning takes place. This burning gas travels in a wave front which compresses the unburned gas before the wave front. When this compression of the unburned gas reaches a point of sufficiently high temperature, the unburned gas explodes giving the detonation phenomena unless the heat generated by the compression is dissipated through the cylinder walls. When knocking occurs, a temperature rise is noted in the cylinder and a hotter engine results which aggravates the detonating conditions. The knocking phenomena therefore dissipates energy, due to the high temperature, which is lost to the cooling water surrounding the cylinder; hence a loss of power is incurred.

The knocking propensities of a gasoline are due to the type of hydrocarbons present in the gasoline. For it has been shown, particularly by Ricardo's work, that the aromatic hydrocarbons are the highest anti-knock hydrocarbons known. Ricardo has worked out a toluene standard for motor fuels so that the napthenes, olefines and paraffins may be related in regard to their knocking qualities as a function of the percentage of the different groups of hydrocarbons present in motor fuels.

It will be shown in the following re-



This battery of eleven tanks holds 1,092,000 gallons of oil. The oil is kept safe by the steel tanks, which in turn are protected with pure red-lead paint.

It pays to give special attention to the thorough painting of bolt heads, plate connections, and other details because it is at these places that corrosion is most likely to start.

These steel tanks guard a million gallons —*but what protects the tanks?*

THIS battery of eleven tanks safeguards more than a million gallons of oil. The owners can be sure that their oil is safe, for it is protected by a combination that can't be beat—steel tanks that are covered with pure red-lead paint.

This pure protective paint sticks tight to tank steel. It becomes in effect a part of the steel itself. When rust-forming elements attack the tank, they can't get at the metal if its surface is thoroughly covered with pure red-lead.

But to be sure of this protection, you must also be sure that the red-lead is pure—such as Dutch Boy red-lead. Oil tank owners find that Dutch Boy red-lead gives the metal in their tanks full and lasting protection against rusting. It forms a dense, tough covering that is still elastic enough to expand and contract with changes in the temperature, without cracking.

You can get Dutch Boy red-lead in both paste and liquid form. The liquid comes in the natural orange-red color for coats next to steel and also in light and dark green, light and dark brown, and black, for finishing coats. The paste is obtainable in the natural orange-red color, and can be shaded to browns, greens, black, etc.

Government tests prove that light-colored coats reduce heat absorption by tank metal and decrease oil evaporation by keeping the oil 8 to 10 degrees cooler. For this purpose, many oil operators use Dutch Boy white-lead for finishing coats on top of undercoats of Dutch Boy red-lead. Tanks painted in this way reflect the hot rays of the sun, and are fully effective in repelling the attacks of air and moisture, the causes of corrosion. If you have a problem in protecting your metal equipment from corrosion, we will be glad to help you solve it. Experts in our Department of Technical Service have made a special study of paint protection for metal in the oil industry. They will be glad to consider your specific problem. Simply address our nearest branch.

Litharge

For oil refining you want litharge of correct physical character and extreme chemical purity. Such litharge is made by the makers of Dutch Boy red-lead and Dutch white-lead. At all times you can rely on its unvarying uniformity.

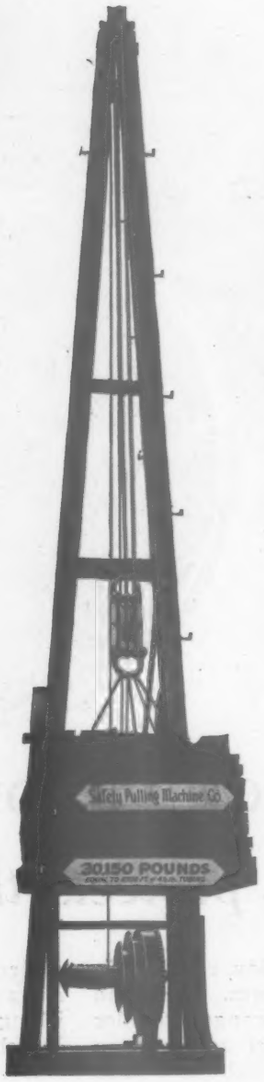
Our nearest warehouse can give you quick shipment in any quantity you desire.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

Eclipse Deepwell Pulling Machine

That one company recently purchased 6 of these machines to be used in a country 6,000 miles from the United States is proof this Pulling Machine is good.



Eclipse Deepwell up to 8000 ft. 2" Tubing Weight 3645

Wreckers also made to order, approximate weight 5000 lbs. One of our customers stated that he has pulled a weight equal to 100 tons with one of these machines.

Specifications Deep Well

Mast 8x10x36 ft., Douglass Fir A-Style Two Wheel Truck, two 16" Bronze bearing crown pulleys, 2½ Steel Pin mounted in malleable boxings. Large supporting plate 16" dia. between crown pulleys, eliminating any chance of bending pin.

Reel or Drum; 32 lb. 8¼ casing filled with concrete for winding drum, differentials banded with 3/16 band iron, brake surface 6"x40", choke brake style same as star drilling machine.

The whole reel assembly is mounted on 2¾ square steel shaft extending clear through reel, secured by three heavy castings.

For sale by all Supply Companies

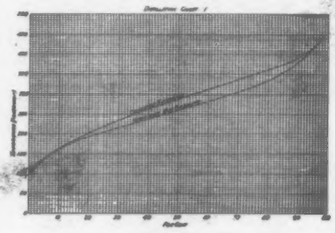
Manufactured by

SAFETY PULLING MACHINE COMPANY

INDEPENDENCE, KANSAS

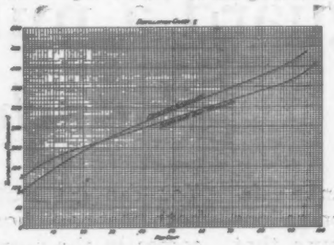
port that cracked gasolines are superior motor fuels compared to straight run gasolines from the same crude oils. The straight run gasoline was produced from the crude oil by topping and the fuel oil residue cracked under heat and pressure commercially to produce cracked gasoline. The various pairs of gasolines were then compared as to their anti-knock and other properties.

One of the refineries, operating on a mixture of Braman, Tonkawa, Covington and Healdton crude, yielded 42 per cent of gasoline as straight run, with approximately a 55 per cent fuel oil residue. This fuel oil residue is being cracked commercially into 50 per cent gasoline. The straight run gasoline was of 60 degrees Baume gravity, initial boiling point of 97 degrees Fahrenheit and 440 degrees Fahrenheit end point, whereas the cracked gasoline was of 58.1 degrees Baume gravity with an initial boiling point of 107 degrees Fahrenheit and an end point of 438 degrees Fahrenheit. The distillation chart of the cracked and straight run gasolines follow as Chart No. 1.

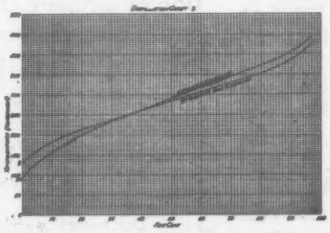


Gasoline From Smackover

Another pair of straight run and cracked gasolines were derived from a commercial plant operating on Smackover crude oil, containing approximately 5 per cent gasoline. The fuel oil residue, under heat and pressure conditions yielded commercially 46-48 per cent cracked gasoline or approximately 40 per cent of the crude oil. The straight run Smackover gasoline was of 52 degrees Baume gravity with an initial boiling point of 128 degrees Fahrenheit and an end point of 413 degrees Fahrenheit. The cracked gasoline was of 55.8 degrees Baume gravity with an initial boiling point of 93 degrees Fahrenheit and an end point of 441 degrees Fahrenheit. The distillation chart No. 2 gives the curves of the straight run and cracked gasolines.



A commercial plant operating on a mixture of Bristow-Cromwell and Cushing crude oils yielded 37 per cent of straight run gasoline. The cracking stock used commercially at this plant represents the bottoms from the topping plant and under cracking conditions yielded 45 per cent of gasoline. The straight run commercial gasoline was a 57.5-degree Baume gravity with an initial boiling point of 131 degrees Fahrenheit and an end point of 435 degrees Fahrenheit, while the cracked gasoline derived from the topped crude was 57.7 degrees Baume



gravity with an initial boiling point of 96 degrees Fahrenheit and an end point of 444 degrees Fahrenheit. Chart No. 3 shows the curves of the straight run and cracked gasolines.

A plant operating on Kentucky Somerset crude, yielding 30 per cent straight run gasoline, converts the fuel oil residue into 45 per cent of cracked gasoline. The straight run gasoline has a Baume gravity of 58.5 with an initial of 124 degrees Fahrenheit and an end point of 443 degrees Fahrenheit. The cracked gasoline has a Baume gravity of 63.5 degrees with an initial boiling point of 104 degrees Fahrenheit and an end point of 396 degrees Fahrenheit. Distillation

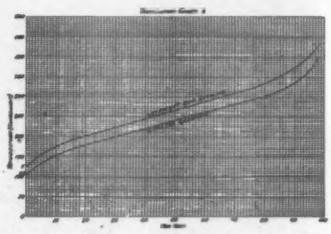
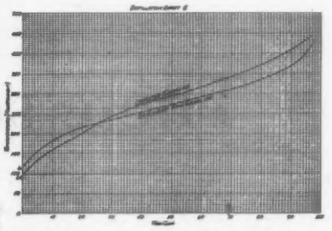


Chart No. 4 indicates the curves of the straight run and cracked gasolines.

A plant operating on the Big Sinking Field of Kentucky crude oil, has a commercial yield of 35 per cent gasoline and operates on a mixture of Kentucky fuel and straight run gas oil, obtaining a yield of 53 per cent of cracked gasoline as a commercial operation. The straight run gasoline has a Baume gravity of 58.1 degrees with an initial boiling point of 116 degrees Fahrenheit and an end point of 435 degrees Fahrenheit, whereas the cracked gasoline has a Baume gravity of 58.4 degrees with an initial boiling point of 93 degrees Fahrenheit and an end point of 443 degrees Fahrenheit. The distillation chart No.



5 shows the curves of the straight run and the cracked gasoline.

A plant operating on Somerset and Luling crude in Texas, yielding 29 to 30 per cent of straight run gasoline, cracks a mixture of Somerset and Luling fuel oils. The yield of cracked gasoline at this plant is 37 per cent. The straight run gasoline is of 56 Baume gravity with an initial boiling point of 133 degrees Fahrenheit and an end point of 442 degrees Fahrenheit, while the cracked gasoline has a Baume gravity of 58.6 degrees with an initial boiling point of 107 degrees Fahrenheit and an end point of 424 degrees Fahrenheit. The distillation

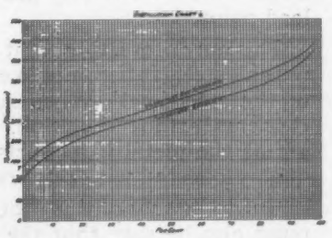
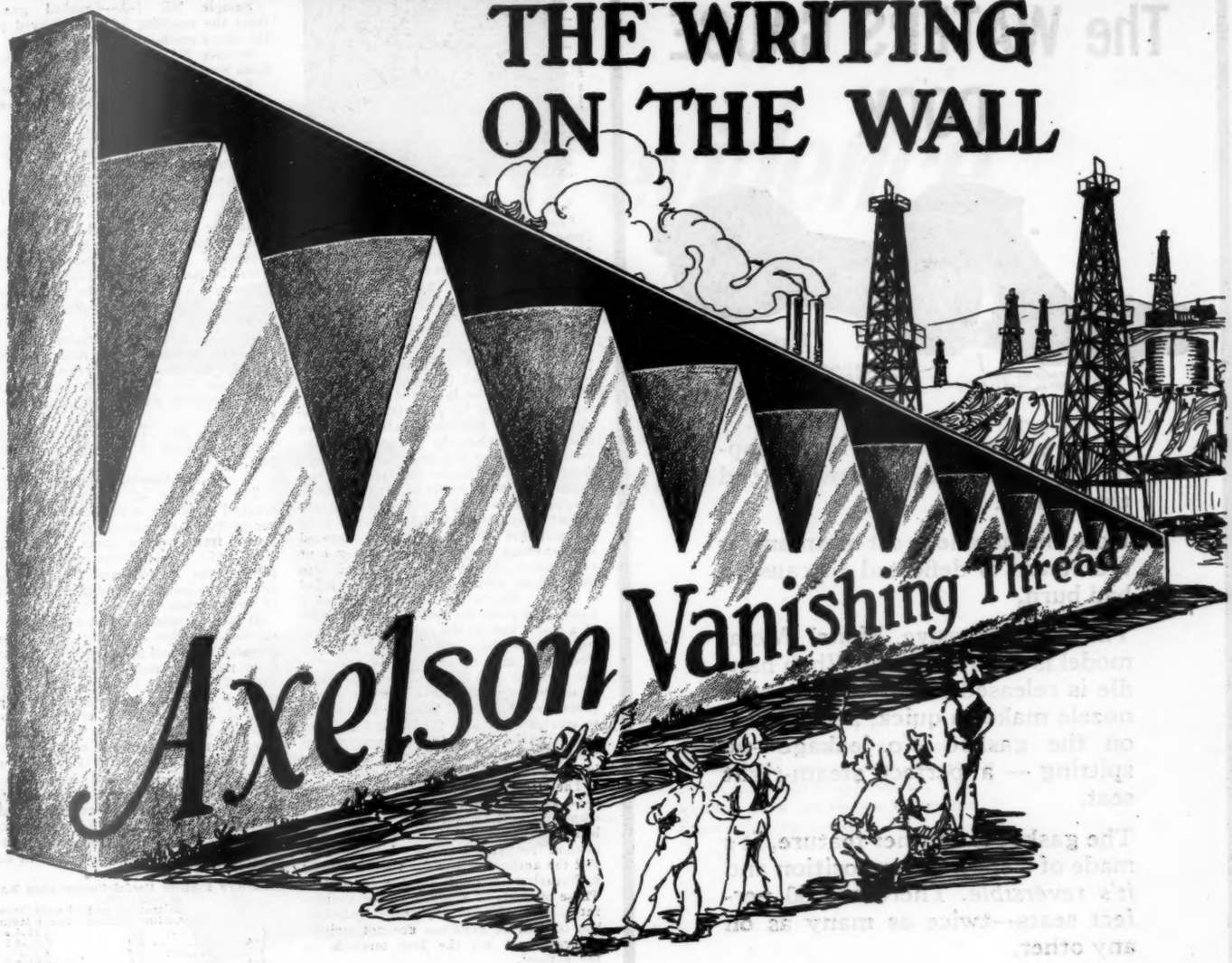


chart No. 6 shows the curves of the straight run and cracked gasolines.

It will be noted that the above six pairs of straight run and cracked gasolines vary quite widely as a function of the properties of the crude oil and the gasoline derived from the cracking reaction. The cracking process in use in the different refineries shows a flexibility of producing different type gasolines which is a function of the cracking stock

THE WRITING ON THE WALL



THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

Copyright 1925 Axelson Machine Co.

The strongest type of Thread ever designed for sucker rod service

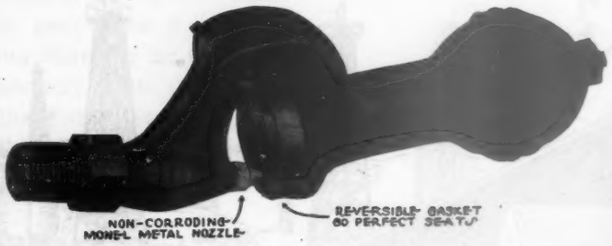
Ask the man who uses them

AXELSON MACHINE COMPANY

General Office and Western Factory: Corner Boyle Ave. and Randolph St., Los Angeles, Calif. P. O. Box 337.
Eastern Sucker Rod Factory: 3844 Walsh St., St. Louis, Mo.
Mid-Continent Office: 1023 Kennedy Building, Tulsa, Okla.
Mid-Continent Distributors: Frick-Reid Supply Co.
Eastern Distributors: Frick & Lindsay Co.
Casper, Wyoming, Office: With Frick-Reid Supply Co.
New York City Office: 30 Church Street.

Axelson Sucker Rods

The WATERS GAUGE COCK



There's a sound reason for its popularity with the boys who tend the boilers.

Note the handle is set at an angle. No steam is deflected to cause a bad burn.

The non-corrosive Monel Metal model is always clean. When handle is released it drops down, the nozzle makes a quick, perfect seal on the gasket. No leakage—no spitting — a perfect steam-tight seat.

The gasket is another feature. It's made of a special composition and *it's reversible.* There are 60 perfect seats—twice as many as on any other.

Many companies are standardizing on the Waters Gauge Cock after testing them against all others.

Such a test on your boilers might prove well worth while.

Stocked at all Supply Stores

Smith

SEPARATOR COMPANY

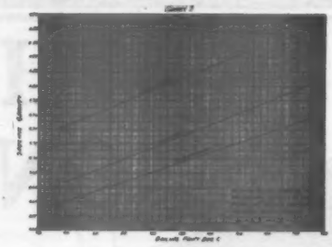
Chestnut-Smith Bldg
Tulsa, Okla.

NEW YORK OFFICE
Export Representative, Oil Field Equipment Co.
30 Church St., New York
Cable Address:
"Oilfield" N. Y.

LONDON OFFICE
Perkins MacIntosh Petroleum Tool & Boring Co., Ltd.
25 Bishopsgate
Cable Address:
"Oleborers" London

TEXAS OFFICE
507 State Nat'l Bank Bldg., Dallas, Texas
CALIFORNIA OFFICE
2041 East 38th Street, Los Angeles, California

and the conditions under which the units are being operated.



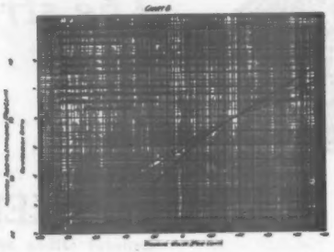
Boiling Points

Chart No. 7 shows the relationship between the boiling points and specific gravities of the paraffin, olefine, napthene and aromatic hydrocarbons. One will note the wide differences in the specific gravities of the different hydrocarbons at the same boiling points.

Ricardo has worked out the relation between the toluene value and the compression ratio; the relation between the toluene value and the indicated thermal efficiency, and the indicated minimum effective pressure in a variable compression motor. Ricardo's data has been used so that when the percentage of olefines, naphthenes and aromatics has been determined in a motor fuel one can calculate with some degree of accuracy from Ricardo's data that 4 per cent of naphthenes is equivalent to 1 per cent of toluene and that 5.0 per cent of unsaturated hydrocarbons is equivalent to 1 per cent of toluene, this can be converted into the highest useful compression ratio of a motor. Hence the toluene value of a motor fuel gives the anti-knock properties of a motor fuel at the point where knocking just begins, according to Ricardo. From the data of the toluene value of the straight run and cracked gasolines, it is clearly shown that the anti-knock properties of cracked gasoline is superior to straight run, and the cracked gasoline is utilizable in a higher compression motor than is now in general use. This is brought out clearly in Table B.

The straight run and cracked gasolines were analyzed by the sulphuric acid absorption method for the unsaturated hydrocarbon content, the nitration method for the aromatic hydrocarbons and the aniline method for the naphthene hydrocarbon content of the gasolines. These methods of analysis of the unsaturates, aromatic and naphthene hydrocarbon content of gasolines are not strictly accurate, yet are the best methods so far devised.

The unsaturates, aromatic and naphthene hydrocarbons were converted into the Ricardo toluene value. The toluene value was then converted into the highest



useful compression ratio of an engine, being derived from the Chart 8 of Ricardo's.

Sample No. 1 represents straight run gasoline from a mixture of Tonkawa, Healdton, Covington and Braman crude oil.

Sample No. 1-A—Cracked gasoline from the cracking of fuel derived from the above crude oil mixture.

Sample No. 2—Straight run gasoline from Smackover crude.

Sample No. 2-A—Cracked gasoline from the cracking of the Smackover crude oil.

Sample No. 3—Straight run gasoline from a mixture of Bristow, Cromwell and Cushing crude.

Sample No. 3-A—Cracked gasoline from the cracking of the above crude oil mixture.

Sample No. 5—Straight run gasoline from Kentucky Somerset crude.

Sample No. 5-A—Cracked gasoline from the Somerset topped crude oil.

Sample No. 6—Straight run gasoline from the Big Sinking crude oil of Kentucky.

Sample No. 6-A—Cracked gasoline from the cracking of Big Sinking fuel oil mixed with some straight run gas oil.

Sample No. 7—Straight run gasoline from Somerset and Luling, Texas, crude oil.

Sample No. 7-A—Cracked gasoline from a mixture of Somerset and Luling fuel oils.

No Special Samples

The samples of straight run and cracked gasolines were those actually being produced commercially, and were obtained from storage tanks at the same time. No special tests were made to produce the samples and they represent normal commercial topping and cracking of hydrocarbon oils.

It will be noted that in every case the cracked gasoline shows a higher compression ratio and mean effective pressure than the comparison straight run gasoline. This clearly indicates that cracked gasoline compared to straight run, when derived from the same crude oil, is a superior product. It is interesting to compare the above work with that carried out by Professor E. H. Leslie and Professor G. G. Brown, at the University of Michigan, on samples 1, 1-A, 3, 3-A and 7, 7-A (which follows later in this report) to determine the comparative values of the cracked and straight run gasolines by the bomb method with oxygen and nitrogen.

Ricardo's Highest Useful Compression Ratio

	Sulphuric, Nitration, and Aniline Method	Leslie-Brown Bomb Method
1	5.2	4.95-5.2
1-A	5.9	6.0 -6.2
3	5.3	4.3 -
3-A	5.8	4.95-5.2
7	5.2	5.9 -6.0
7-A	5.8	6.5 -6.7

It will be noted that both methods of determining Ricardo's highest useful compression ratio show that the cracked gasoline will operate a higher compression motor than the straight run gasoline.

In actual comparative tests in a single-cylinder Liberty motor, when comparing straight run gasoline with cracked gasoline derived from the same crude oils, the motor performance showed clearly that the cracked gasoline was superior to straight run, not alone as to anti-knock properties, but also as to power. This conclusion was not alone checked up by the hydrocarbons present in the straight run and the cracked gasolines, but also from actual road tests made on some straight run and cracked gasolines.

A number of road tests have been made

TABLE B

Sample Number	Unsaturated Hydrocarbons: Sulphuric Acid Method	Aromatic Hydrocarbons: Nitration Method	Naphthene Hydrocarbons: Aniline Method	Ricardo Toluene Value	Ricardo's Relation Toluene Value and Highest Useful Compression Ratio Variable Engine
1	1.3 %	5.6 %	17.5 %	10.3	5.2
1-A	14.4	21.7	36.0	33.6	5.9
2	2.0	26.5	36.0	29.9	5.7
2-A	21.7	30.6	47.0	46.9	6.3
3	2.2	5.5	16.0	14.3	5.8
3-A	14.9	26.0	25.0	31.8	5.8
5	3.2	6.6	13.0	10.4	5.2
5-A	13.8	13.6	33.0	34.6	5.6
6	3.4	10.1	21.0	16.1	5.3
6-A	15.4	24.2	39.0	37.2	6.0
7	4.0	6.6	18.0	10.9	5.2
7-A	14.0	20.5	33.0	31.5	5.8

The best evidence

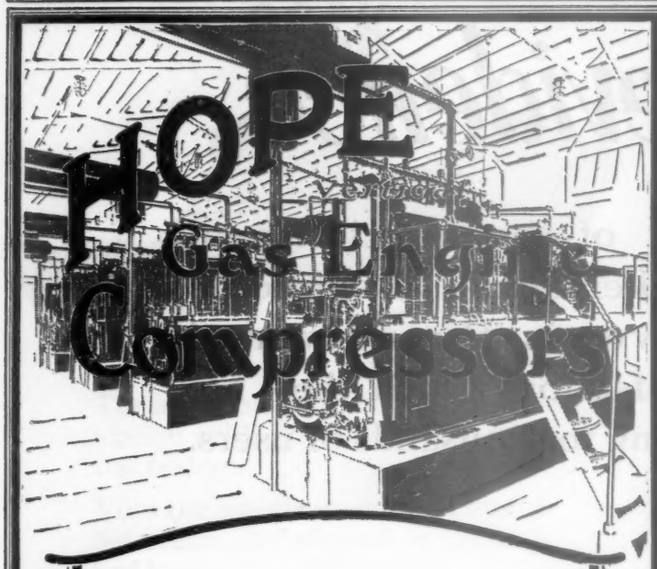
of the superiority of Lunkenheimer Regrinding Valves is the universal satisfaction which they are giving to thousands of users.

Lunkenheimer Distributors, located in all industrial centers, carry complete stocks and render prompt service. Call on them when you require Valves and Engineering Appliances.

Lunkenheimer Bronze Regrinding Valve
Inside Screw, Union Bonnet
⅛ to 4 in.
Outside Screw and Yoke
1½ to 6 in.
Working steam pressures up to 300 pounds

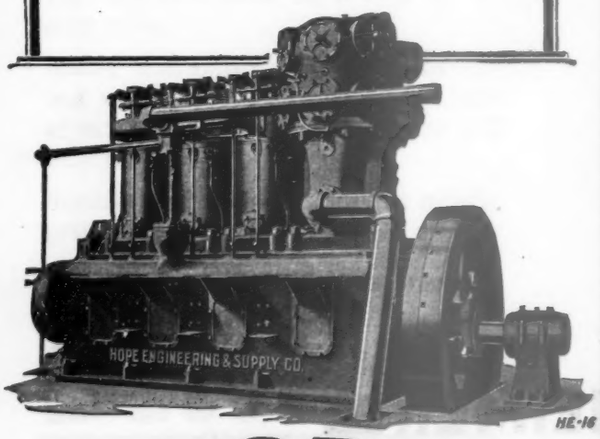
THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI, OHIO, U. S. A.
NEW YORK CHICAGO BOSTON LONDON
EXPORT DEPT. 129-135 LAFAYETTE ST., NEW YORK

3-35A-91



Whether you're buying a compressor just for today, or investing in a compressor plant for years to come, the Hope Vertical is the logical "buy." Using it, your total plant cost per million cubic feet capacity will be lowest. Your operating cost will be at least as low as with any other type—and probably lower. And you'll have the satisfaction of knowing that you have a gas compressor with the very latest refinements engineering can produce.

Ask us for specifications.



ENGINEERS CONTRACTORS

HOPE Engineering & Supply COMPANY

DESIGNERS MANUFACTURERS

MT. VERNON, OHIO, U. S. A.

on cracked gasoline over short and long periods of time, which have indicated conclusively that cracked gasoline was not alone knockless, but also pulled more and gave higher motor efficiency than when straight run gasoline was employed. Many tests have shown that in hill climbing, when using cracked gasoline, the motor car could be almost stopped without knocking, and then the throttle opened and the car would accelerate progressively in high gear while completing the hill climb.

ATTITUDE OF PUBLIC TOWARD MOTOR FUELS

(Continued from Page 66)

of these processes make better grades of gasoline than others.

We might better illustrate the importance of the operation and apparatus on the quality of the product by a very simple comparison. Those of you who are married vividly remember the first biscuits made by your new wife. She used the same flour, salt, lard, milk and baking powder, thought she was mixing the dough and baking it the same way as she had seen her mother do many times and yet there was a vast difference between her biscuits and those her mother and your mother made. So it is with synthetic gasoline. The same raw materials go into the processes, almost identical treatment is given them but the resulting products are entirely different. One of them is highly unsaturated, is off color, has a bad odor, and will form gum in the engine while the other one is sweet, has a good color and a pleasant odor and practically no gum forming properties. The same holds true, however, of straight run products. Some gasolines will stand up and give excellent results and others will not.

So the purchaser must not condemn the synthetic gasoline just because it is synthetic. He must buy his products from a dependable manufacturer who has a good synthetic process. This manufacturer will not put out an inferior product, for he knows if he does he cannot long remain in business.

Anti-Knock Value

As was pointed out a short time before, synthetic gasoline contains products which were thought to be detrimental to motor operations. These substances are known as unsaturates, naphthenes and cyclic compounds. However, at the present time they give synthetic gasolines an advantage over straight run, as they have anti-detonating properties.

Detonation causes the knocking or "pinging" that occurs in an automobile engine when on a hard pull such as climbing a hill or when a full throttle is given in accelerating the motor. It is commonly known as carbon or spark knock. Detonation is caused by the instantaneous explosion of a portion of the charge. In normal operation of an internal combustion engine, the flame travel is from one particle to another and a smooth running motor is the result. If, however, all or even a portion of the charge detonates or explodes instantaneously, an enormous instantaneous increase in pressure and temperature is produced. This causes a knock and if allowed to persist will result in serious damage.

Ordinary black powder ignites as the mixture in an engine should, that is, one grain of powder ignites the one next and so on through the entire mass. Nitroglycerin detonates, it all explodes at once, and it is for this reason that it cannot be used directly as a gun powder.

Detonation is the bugbear that has stopped or at least retarded the development of high compression internal combustion engines. The efficiency of the engine is very markedly influenced by the compression. That is the higher the compression ratio at which the engine can be operated, the more miles per gallon can be obtained from the car, but when high compression engines are used on ordinary fuels, they knock, due to the detonation of the fuel. This kills the power of the engine and also causes various troubles, such as burning of pistons and cylinders, loosening crank shaft, bearings, etc. However, by the use of synthetic gasolines, this detonating property of the engine is overcome to a certain extinct. This gives more miles per gallon, a smoother running engine and less valve and bearing trouble. By using this fuel on engines that have a tendency to knock on a hill, smooth operations will result.

The refining industry at the present time is endeavoring to develop this anti-detonation property of synthetic gasoline to such a high degrees that in the future the motor manufacturers can put out a much more efficient engine so that the motoring public will get 40 or 50 miles per gallon on their Fords instead of the 20 they are now obtaining.

Gulf Coast Stocks For 3 Months Have Steadily Decreased

HOUSTON, Tex., Nov. 28.—Stocks of Gulf Coast crude in steel and earthen storage tanks on November 1 aggregate 13,861,000 bbls., a decrease of 221,725 bbls. from the figures of October 1. The surplus in steel tanks is 6,344,200 bbls. and in earthen reservoirs 7,516,800 bbls.

The stocks in steel tanks can be said to represent Grade "A" and most of that in earthen reservoirs as Grade "B."

The stocks have been steadily decreasing since August 1.

In addition to the figures below, some 7,670,600 bbls. of light gravity crude from the northern fields are stored at tank farms and refineries in the Coastal region, compared with 7,992,000 bbls. as of October 1. This is a decrease of 321,400 bbls.

Stocks in the Southwest fields increased 38,000 bbls. during the month. The North and East Central stocks decreased 42,535 bbls. and the North Louisiana and Arkansas Fields increased 1,202,160 bbls.

Coastal Stocks

District—	November 1— Steel Tanks	Earthen
Sour Lake	1,479,200	2,383,700
Humble	604,700	2,386,600
West Columbia	1,386,900	1,057,000
Orange	229,180	917,800
Spindletop	1,764,400	.....
Hull	69,670	446,500
Goose Creek	209,100	155,800
Pierce Junction	9,600	170,400
Saratoga	160,250	.....
Big Creek	11,360	.....
Jennings (La.)	81,500	.....
South Liberty	42,500	.....
Vinton (La.)	263,900	.....
Markham	11,000	.....
Batson	4,500	.....
Damon Mound	4,800	.....
Barber Hill	2,800	.....
Dayton	200	.....
Total Nov. 1	6,344,200	7,516,800
Total Oct. 1	6,459,550	7,623,175
Decrease	115,350	106,375
Combined total Nov. 1		13,861,000
Combined total Oct. 1		14,082,725
Decrease		221,725
Decrease from Sept. 1 to Oct. 1		389,175
Decrease from Aug. 1 to Sept. 1		256,600

Southwest Fields

District (all steel storage)—	Nov. 1
Luling	540,330
Lockhart	11,000
Mirando (Webb and Jim Hogg Counties	186,000
Total Nov. 1	736,330
Total Oct. 1	698,330
Increase	38,000

North and East Central Texas Stocks

Field—	Nov. 1
Eastland and Stephens	9,639,500
Burkburnett	1,150,600
Mexia	14,070,900
Powell	7,024,900
Electra	540,300
Archer County	100,180
Petrolia	23,860
Vernon	102,325
Total Nov. 1	32,652,565
Total Oct. 1	32,696,200
Decrease	42,535

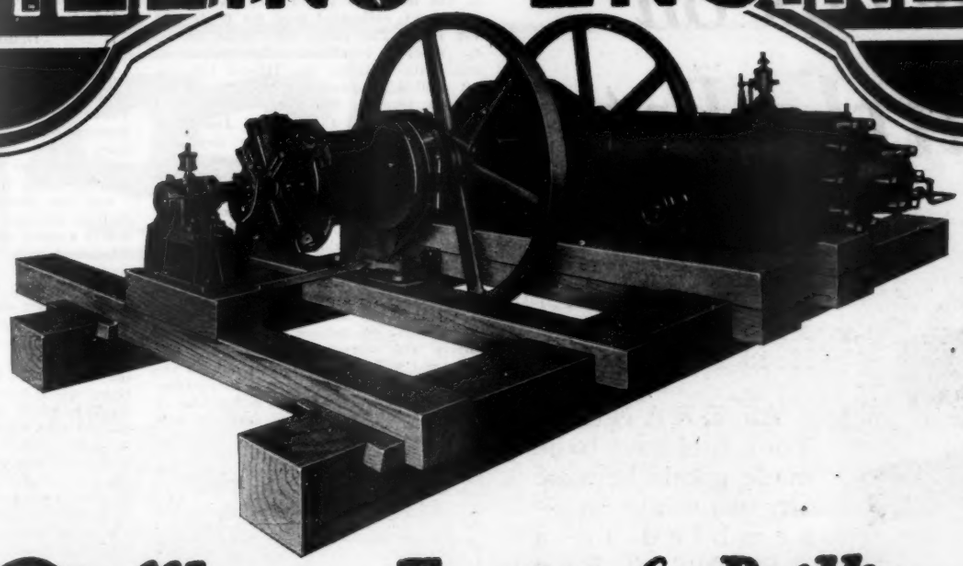
North Louisiana and Arkansas

Field—	Nov. 1
Smackover	29,713,200
El Dorado	4,098,270
Homer	5,461,800
Haynesville	5,043,000
Crichton, DeSoto, Bull Bayou	5,269,700
Bellevue	240,250
Cotton Valley	141,190
Total Nov. 1	49,967,410
Total Oct. 1	48,765,250
Increase	1,202,160

NEW JOBBING COMPANY

NASHVILLE, Mich., Nov. 28.—Organization of the Independent Oil Co. to distribute petroleum products at Nashville, has been announced. W. J. Lienhauser is president and G. G. Edwards, secretary of the new company.

FRANKLIN VALVELESS DRILLING ENGINES-



The Wonder Engine for Drilling

Franklin Valveless Fuel Oil and Gas Drilling Engines have demonstrated that they are

The Wonder Engines for Drilling

Average fuel consumption for Drilling with Franklin Valveless Oil Drilling Engine for twenty-four hours is less than forty gallons.

Bulletin on Request

PRICES

Fuel or Crude Oil Drilling Engines
complete with Self-Oiling Reversible Drilling Clutch, Blower, Circulating Pump and Fuel Tank.
Sizes for Mid-Continent and Western Service $3,150 and $3,700—F. O. B. Factory
Sizes for Eastern Service $2,600 and $3,150—F. O. B. Factory

Gas Drilling Engines
complete with Self-Oiling Reversible Drilling Clutch, Blower and Circulating Pump.
Sizes for Mid-Continent and Western Service $1,725 and $2,150—F. O. B. Factory
Sizes for Eastern Service $1,450 and $1,725—F. O. B. Factory

Distributed by

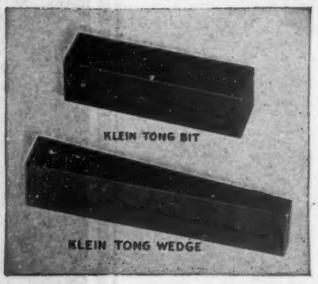
ATLAS SUPPLY COMPANY
Muskogee, Okla., and Branches
NEW MARTINSVILLE SUPPLY CO.
New Martinsville, W. Va.
INTERNATIONAL SUPPLY CO.
Tulsa, Okla., and Branches
McEWEN BROS. Bolivar, N. Y.
WOOSTER TOOL & SUPPLY CO.
Wooster, Ohio
W. HUNTER ATHA, Zanesville, Ohio
WASHINGTON ENGINE & PUMP CO. Washington, Pa.
BRADFORD SALES CO.
Bradford, Pa.

46 Years of Exclusive, Continuous Oil Field Service

FRANKLIN VALVELESS ENGINE COMPANY

Established 1879

A whole lot depends on a little bit



WE make no special bits for TRANSIT Red Head Tongs.

All TRANSIT Tong Bits have to be made good, because any one might be assembled in a TRANSIT Red Head Tong, and the reputation of the whole tool would then be at stake.

We take no chances—we make them all good.

There are forty ways to cheapen these bits, but we know of no way to make them better.

TRANSIT Tong Bits

Special steel; cut from bar stock on an automatic machine to preserve the structure of the steel at the ends. Each bit is then accurately ground on all four sides. Result—four true and sharp edges.

In the hardening furnace, each bit is handled separately. After hardening, it is heat treated and the temper drawn to an exact and predetermined point.

NATIONAL TRANSIT
Pump & Machine Company
OIL CITY, PA.

District Offices: New York, Philadelphia, Pittsburgh, Cleveland
Tulsa, Houston, Denver

KENTUCKY-TENNESSEE

(Continued from Page 54)

feet, approximately 146 feet below the black shale.

In the Gorby Pool, L. Emery, Jr., & Sons finished three paying producers: No. 3 on the F. Preston tract, good for 15 bbls.; No. 1 Richardson, good for 5 bbls. at 410 feet, and No. 1 Depp-Greer 36-acre tract, estimated good for 6 bbls. at 407 feet. The latter two wells proved up several locations. In the same immediate vicinity, the Hiland Oil Co. got a 10-bbl. starter in its No. 10 on the Cassidy tract at 346 feet.

The Wood Oil Co.'s No. 1 Jewell, in the Emery-Moore area, was dry and plugged at 568 feet. This test was drilled in an effort to extend production to the south of the Smith place, on which a number of good wells have been completed. On the Howard farm, Fred Moore, of Bowling Green, Ohio, has a 6-bbl. pumper in his No. 9 at 540 feet, 185 feet below the black shale.

Past Week's Work

A resume of the week's work shows a total of 31 completions, 23 of them producers with a flush of 534 bbls., 5 dry holes and 2 gassers. Compared with the previous week, there were 4 more completions, 6 more producers, a decrease of 54 bbls. in initial yield, 1 less dry hole and 1 less gas well. The wells were distributed by counties as follows:

County—	Comp.	Wells	Prod.	Dry	Gas
Barren	9	8	83	1	0
Owensboro district	4	1	10	3	0
Lawrence-Johnson	4	4	46	0	0
Johnson-Magoffin	5	1	4	0	2
Estill	3	3	9	0	0
Cumberland-Monroe	3	3	300	0	0
Warren	3	3	18	0	0
Allen	2	1	75	1	0
Total	31	24	544	5	2
Last week	27	18	598	6	3
Difference	4	6	54	1	1

Drilling Under Way

Fred Moore's No. 5 Gassaway, being tested; Star O. & G. Co.'s No. 5 Russell, drilling on top of the pay sand; Ziegler Brothers' Nos. 22 and 23 Taylor Mansfield were drilling at 350 and 296 feet, respectively; Houchins Leasehold Co.'s No. 18 and 19 Pitcock are on top of the pay sand and No. 20 is being spudded in; Wood Oil Co.'s No. 3 Mary Church is being placed on the pump; No. 11 W. M. Church was drilling at 180 feet; Consolidated Gas Co.'s No. 12 Depp is spudding; No. 7 H. W. Duff was being tested and No. 8 is being started; L. J. Emery, Jr., & Sons' No. 2 Depp and Greer 36 acres is being spudded at 72 feet; Nos. 4 and 5 Preston were being tested; J. W. Porter's No. 12 McGlocklin, drilling below the black shale; Helper & Gorby's No. 4 Chamberlin was being cleaned out after a shot; Smith & Boles' No. 1 Boles looks like a duster in the regular pay.

Warren and Allen Counties

Operations in Warren and Allen Counties are still away below normal, and, as a result, very few wells are being put on production. In the Rockfield shallow pool, southwest of Bowling Green, three wells were drilled in. On the famous Shannon lease, Collins and others deepened their No. 7 from the shallow sand to a total depth of 956 feet, and were rewarded with a 10-bbl. increase in production. The shale was topped at 805 feet and drilled through at 873 feet. On the J. G. Barbee place, Wood and associates drilled in Nos. 3 and 4 good for 10 and 2 bbls. at 494 and 474 feet, respectively.

Aside from the feature well drilled on the Pearson lease in Allen County, only one other completion is reported. It is a dry hole and was drilled by W. K. White on the Graves farm in the vicinity of Trammel Creek.

Owensboro Field

Weather conditions have interfered with drilling operations in the Owensboro Field, and, as many of the roads leading to the different leases are a sea of mud, it has been impossible to move drilling machinery to new locations that have been staked.

There were four completions made in the field during the week, three of them being dusters. The producer is credited to Fred Carson, who brought in a 10-bbl. pumper in his No. 5 Abe Howe from the Barlow sand.

A wildcat venture being drilled by the Emery interests on the T. F. Willis tract is dry in the Barlow sand. It is thought, however, that a deep test will be made out of this hole before its abandonment. On the Lafe Payne 167 acres, I. N. Harkless got a dry one in his first venture at 803 feet, and the Kentucky Oil Co.'s No. 3 J. R. Johnson, north of the Payne, has been abandoned in the Jett sand at about 470 feet.

Drilling Operations

The Foster Oil Co. is nearing completion in its initial test on the Colonel Powers 86-acre tract, adjacent to the Pennsylvania-Indiana Oil Syndicate's Powers lease, on which four wells have been already drilled. The No. 4 Powers is reported to have made 150 bbls., its first pumping from the Barlow sand.

On the Rowe place, near Dermont, drilling has gone to the depth of 800 feet, where a small oil showing was picked up. This test will be carried to the 1,200-foot level.

The Panther Creek Oil Co. is getting ready to start up on the Dave King farm on the South Fork of Panther Creek; the Foster Oil Co.'s test at Fordsville is shut down below the Barlow formation awaiting orders; the Pennsylvania-Indiana Oil Syndicate is moving a rig onto the W. P. Griffith place, near the recent completion of the White Plains Oil Co. on the Midkiff; No. 1 Laura Mercer is shut down at 200 feet; Petroleum Extraction Co.'s No. 1 Keith, near Morgan, drilling at 200 feet; Leonard and others' No. 1 J. Miller, shut down at 815 feet waiting for pipe; Foster Oil Co.'s No. 1 Keith, south of Antwerth Church, was drilling at 250 feet; Chicago Petroleum Co. is moving a rig to drill No. 4 Ira Crowe; C. A. Leeper's No. 4 J. S. Collier 13 acres, 800 feet east of No. 1, spudding at 90 feet; Pearl Steven's No. 1 G. V. Barlow, drilling at 280 feet; Fred Carson's No. 6 Abe Howe, being rigged up; Leeper Oil Co.'s No. 4 Ira Jett, drilling in the Barlow sand; White & Nicklin's No. 7 O. T. Burdette is spudding at 87 feet; Panther Creek Oil Co.'s No. 10 J. W. Smith, 400 feet south of 8, is rigging up.

It is reported that the Ohio Oil Co., of Findlay, Ohio, has several scouts in the Owensboro Field looking over the different pools.

There is no doubt in the writer's mind that the Owensboro Field, comprised of parts of Hancock, Ohio and Daviess Counties, will, before many more months pass, surprise the Kentucky operators. There are at this time several well-located wildcats drilling, while carefully-selected locations have been made for at least 10 more ventures in all directions. It is known that the oil in this area comes from a true sandstone, and when production is obtained it holds up remarkably well.

Cumberland County Drilling

The Kanawha Oil Co.'s No. 3 Coop, on Sulphur Creek, was down 1,291 feet and drilling. The deep pay is expected to be found at about 1,380 feet; W. S. Raydure is still trying to fish casing from his No. 2 J. B. Riddle after the well was shot; Hook and associates' No. 1 Bake Riddle was progressing at 150 feet below the Pencil Cave. On Williams Prong of Sulphur Creek, Wilcox Brothers have moved a rig to No. 2 location on the Melton farm to offset their discovery well, which is making 25 bbls. from the first Sunnybrook sand. On Johnson Prong of Sulphur Creek the Carter Oil Corp. has made two locations on its Huddleston-Payne lease at Peytonsburgh and also made location for its No. 4 on the Huddleston-Payne tract, on Riddle Prong, to offset W. S. Raydure's No. 4 M. E. Coop.

Wilcox Brothers are down 100 feet and drilling in their No. 6 Sarah Sheckles on Steels Fork of Bear Creek.

The Alta Oil Co.'s No. 1 Orvill Cheatham, on the West Fork of Crocus Creek, offsetting the two big producers on the Dick and Elam Cheatham farms, is still shut down on top of the first Sunnybrook sand awaiting the completion of the 1,000-bbl. tanks which are now being erected.

(Continued on Page 104)

Sub Chaser—Portable Rotary Uses Link-Belt SS-40 Chain

HERE is how the Beaumont Iron Works Co. uses SS-40 on their new Sub Chaser Portable Drilling Rig. This Rig is good for 2,000 ft. territory —a good rig, a good chain, a good combination.

Four Link-Belt ≻TWYNCONE≺ Clutches are included in its makeup. (Ask us to explain the merits of this famous clutch).

Where reliable performance is required, reliable equipment is necessary.

Need we say, "Use Link-Belt?"

LINK-BELT COMPANY, INDIANAPOLIS

Leading Manufacturers of Elevating, Conveying and Power Transmission Chains and Machinery 2387

LINK-BELT

GOODYEAR MEANS GOOD WEAR

You will find your drilling and pumping are done more efficiently and economically when you equip with Goodyear Belts. These belts are built to give powerful and trouble-free service, under the most exacting conditions of oilfield duty

Goodyear Mechanical Rubber Goods serve so well because they are designed and built with a full understanding of oilfield conditions and refinery duty.

They stand up to the job, they do their work efficiently and economically, and they wear a long, long time.

For service records, or for any other information about them, write to Goodyear, Akron, Ohio, or Los Angeles, California.

TRANSMISSION BELTS
Goodyear, Klingtite

HOSE
Air, Water, Steam, Gasoline, Fire and Mill

OIL SUCTION or DISCHARGE HOSE

ROTARY HOSE

PACKING
Asbestos and Rubber Sheet for both field and refinery service

PUMP VALVES

SLUSH PUMP SLEEVES

SWAB RUBBERS

GOODYEAR

GULF PORT REFINED SHIPMENTS INCREASE BUT CRUDE FALLS OFF

HOUSTON, Tex., Nov. 28.—The shipments by water of refinery products and crude from the Gulf ports during the month of October total 15,380,930 bbls., an increase of 394,955 bbls.

The movement of refinery products was 8,989,440 bbls., an increase of 680,198 bbls. over the September figures, or a daily average increase of 13,007 bbls. a day.

The movement of crude was 6,391,464 bbls., a decrease of 285,525 bbls., making the net increase of all oils 394,955 bbls.

More than 7,900,000 bbls., or over 50 per cent of the gross was shipped from the Beaumont-Port Arthur district by the Magnolia Petroleum Co., The Texas Co., Gulf Refining Co., Atlantic Oil Producing Co., Sun Oil Co., Pure Oil Pipe Line Co. and the Humble Oil & Refining Co. from its Neches treminals.

The terminals and refineries at Texas City and along the Houston ship channel handled over 4,250,000 bbls. of the total and the balance was loaded out from Louisiana ports.

Shipments of refinery products averaged 289,982 bbls. per day for October and the crude movement averaged 206,176 bbls. per day, or a daily average of 496,158 bbls. for the month, including both refinery products and crude. The daily average during September was 499,206 bbls.

The Standard Oil Co. of Louisiana led all shippers with a total of 3,017,930 bbls., an increase of 117,599 bbls., compared with September. The Gulf Refining Co. was next with a total of 2,663,281 bbls., an increase of 529,019 bbls. The Texas Co. and Magnolia Petroleum Co. are very close. The former loaded out 1,598,123 bbls. of refinery products and crude from its Port Arthur docks, a decrease of 390,810 bbls. compared with September. The Magnolia Petroleum Co. shipped out a total of 1,589,079, bbls. during the month, an increase of 307,555 bbls. compared with September. The shipments of the Humble Oil & Refining Co. totaled 2,460,776 bbls., made up of 1,560,269 bbls. of crude and 900,507 bbls. of refinery products. These figures give that company third place in the list of shippers during October.

The combined shipments of crude by the Atlantic Oil Producing Co. (Atlantic Refining Co.) from Port Arthur, Atreco and Smith's Bluff were 851,191 bbls.

Exports

Consignments to foreign ports of refinery products and crude total 2,104,059 bbls., an increase of 236,767 bbls. Refinery products aggregated 1,993,890 bbls., an increase of 358,486 bbls. compared with September, but the crude export shipments decreased 112,739 bbls.

Eleven Gulf ports are represented in the following table, with 15 companies as shippers. Consignments from each port were as follows:

From Port Arthur
By The Texas Co.
Refined

Dest'nation	Bbls.
Coastwise	944,753
Export	387,395
Total	1,332,148
Crude	
Coastwise	265,975

From Port Arthur
By Gulf Refining Co.
Refined

Coastwise	2,283,495
Export	278,216
Total	2,561,711
Crude	
Coastwise	101,570

From Beaumont
By Magnolia Petroleum Co.
Refined

*Coastwise	1,493,507

*Magnolia Petroleum Co. makes no division of its shipments.

Crude

Coastwise	95,572

From Port Arthur
By Atlantic Oil Producing Co.
Crude

Coastwise	263,259

From Atreco
By Atlantic Oil Producing Co.
Crude

Coastwise	422,172

From Smith's Bluff
By Atlantic Oil Producing Co.
Crude

Coastwise	165,760

From Neches Terminal (Orange)
By Humble Oil & Refining Co.
Crude

Coastwise	352,486

From Smith's Bluff
By Pure Oil Pipe Line Co.
Refined

Coastwise	190,711
Crude	
Coastwise	322,005

From Sabine Pass
By The Sun Oil Co.
Crude

Coastwise	402,707

From Texas City
By Humble Oil & Refining Co.
Crude

Coastwise	657,520

From Texas City
By Vacuum Oil Co.
Crude

Coastwise	255,265

From Texas City
By Marland Oil Co. of Texas
Refined

Export	32,155
Crude	
Coastwise	615,614

From Texas City
By Swiftsure Petroleum Co.
Crude

Coastwise	69,515

From Baytown (Refinery)
By Humble Oil & Refining Co.
Refined

Coastwise	562,324
Export	338,183
Total	900,507
Crude	
Coastwise	440,094
Export	110,169
Total	550,263

From Houston (Pasadena)
By Crown Central Petroleum Corp.
Crude

Coastwise	*348,831

*298,928 bbls. account of Beacon Oil Co., Boston. 49,903 bbls. account of Big Lake Oil Co.

From Houston
By Sinclair Refining Co.
Refined

Coastwise	372,037
Export	91,805
Total	463,842
Crude	
Coastwise	395,132

From Houston
By Galena-Signal Oil of Texas
Refined

Coastwise	50,000
Export	50,000
Total	100,000

From Houston
By Deepwater O'l Refineries
Refined

Export	60,000

From Baton Rouge (Refinery)
By Standard Oil of Louisiana
Refined

Coastwise	1,098,723
Export	611,389
Total	1,710,112
Crude	
Coastwise	1,307,818

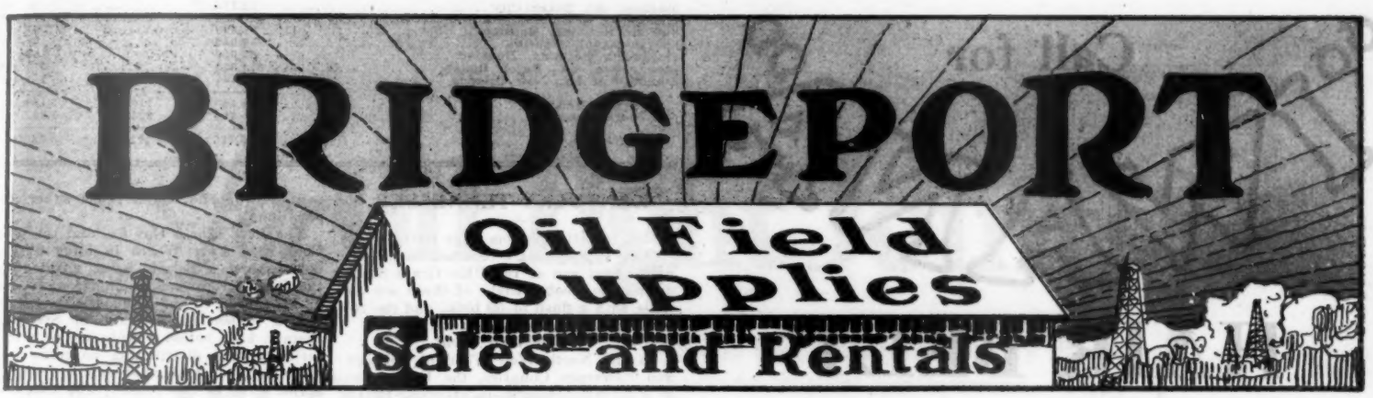
From New Orleans (Storage)
By Standard Oil of Louisiana

Export	144,747

SUMMARY

Shipments by Water of Refined and Crude From Gulf Ports During October, 1925

Company and Port—	Refined	Crude	Total
The Texas Co., Port Arthur	1,332,148	265,975	1,598,123
Gulf Refining, Port Arthur	2,561,711	101,570	2,663,281
Magnolia Petroleum, Beaumont	1,493,507	95,572	1,589,079
Atlantic O. P., Port Arthur	.....	263,259	263,259
Atlantic O. P., Atreco	.....	422,172	422,172
Atlantic O. P., Smith's Bluff	.....	165,760	165,760
Sun Oil Co., Sabine Pass	.....	402,707	402,707
Pure Oil P. L., Smith's Bluff	190,711	322,005	512,710
Humble O. & R., Neches Terminal	.....	352,486	352,486
Humble O. & R., Texas City	.....	657,520	657,520
Vacuum Oil, Texas City	.....	255,265	255,265
Marland Oil, Texas City	32,155	615,614	647,769
Swiftsure Petroleum, Texas City	.....	69,515	69,515
Humble O. & R., Baytown	900,507	550,263	1,450,770
Crown-Central, Houston	.....	348,831	348,831
Sinclair Refining, Houston	463,842	395,132	858,974
Galena-Signal, Houston	100,000	.....	100,000
Deepwater Refining, Houston	60,000	.....	60,000
Standard of La., Baton Rouge	1,710,112	1,307,818	3,017,930
Standard of La., New Orleans	144,747	.....	144,747
Totals for October	8,989,400	6,391,464	15,380,904
Totals for September	8,309,242	6,676,949	14,985,949
Difference	680,198	285,525	394,955
Exports			
The Texas Co., Port Arthur	387,395	.....	387,395
Gulf Refining, Port Arthur	278,216	.....	278,216



This company is keeping pace with the increasing difficulties in theproduction of petroleum that have arisen as wells have become deeper and other conditions have made the job more difficult.

Starting first as a specialty house, having certain meritorious drilling and fishing tools of its own manufacture, it has broadened its line until today it is one of the foremost houses in the oil fields, having many proven tools and a large line of dependable supplies at the following points:

Wichita, Kans.
Russell, Kans.*
Gorham, Kansas.
El Dorado, Kans.
Winfield, Kans.
Tulsa, Okla.
Stroud, Okla.
Depew, Okla.
Wetumka, Okla.
Tonkawa, Okla.
Braman, Okla.*
Garber, Okla.
Pawnee, Okla.*
Panhandle, Tex.*
Ranger, Tex.
Breckenridge, Tex.
Marietta, Ohio.

A complete stock of contractors' suppli es carried at points indicated by a star.

Call for

"IWANA"

HAIR BELT

And Get the Best By Test

Better Belt Service

FENWICK-REDDAWAY MFG CO. NEWARK, NEW JERSEY

IWANA HAIR BELT

Longer Belt Life

CAMEL'S HAIR, COTTON AND LINEN PRODUCTS

Office and Factory: NEWARK, N. J.

Tulsa Representative: A. F. Campbell, P. O. Box 171

The use of plain end pipe with special couplings for high pressure gas lines is too universal to require comment. For this service deLavaud pipe is ideal as the diameter of the pipe is invariable and the surface perfectly smooth. In this material is combined the corrosion resisting qualities of cast iron with the strength needed for high pressure lines.

The picture above shows a section of an eight mile line of 12-inch pipe just completed by one of the largest gas companies in the middle west. This line was tested with air pressure at 100 pounds per square inch and only 3 small leaks were discovered, all of which were easily corrected. The line has been in use for some time carrying gas at 40 pounds pressure and has given perfect satisfaction.

Address Publicity Dept., Burlington, N. J., for booklets

United States Cast Iron Pipe and Foundry Co.

General Offices: Burlington, New Jersey

SALES OFFICES:

Philadelphia—1421 Chestnut St.
Buffalo—957 E. Ferry St.
New York—71 Broadway
Pittsburgh—Henry W. Oliver Bldg.
Chicago—122 S. Michigan Blvd.
Cleveland, Ohio—1150 E. 26th St., N.E.
Dallas, Texas—Magnolia Bldg.
Birmingham, Ala.—1711 American Trust Bldg.
San Francisco—Monadnock Building.
Minneapolis—Plymouth Building
Kansas City, Mo.—Interstate Bldg.

Mariand Oil, Texas City	32,155	.....	32,155
Humble O. & R., Baytown	338,193	110,169	448,352
Sinclair Refining, Houston	91,805	.....	91,805
Galena-Signal, Houston	50,000	.....	50,000
Deepwater Refining, Houston	60,000	.....	60,000
Standard of La., Baton Rouge	611,389	.....	611,389
Standard of La., New Orleans	144,747	.....	144,747
Total October	1,992,890	110,169	2,104,059
Total September	1,635,404	222,908	1,867,312
Difference	358,486	112,739	236,767

KENTUCKY-TENNESSEE

(Continued from Page 100)

Only 10 wells were reported completed in the east end of the Blue Grass State during the week. Eight of these are oil wells with a flush of 59 bbls., and the remaining two were small gassers.

North Weir Field

In the North Weir Field of Johnson and Lawrence Counties, the Union Gas & Fuel Co. brought in its No. 13 G. Evans, District No. 33, for 15 bbls. from the Weir sand, and No. 4 on the C. K. Dobyne tract No. 2, estimated good for 12 bbls. from the Weir formation.

Garrison & Townsend's Nos. 18 and 19 C. K. Dobyne, in District No. 22, are estimated at 4 and 15 bbls., respectively, from the Weir pay.

South Weir Field

The Structure Oil Co.'s No. 11 J. J. Prater, District No. 27, of the South Weir Field of Johnson and Magoffin Counties, is making 4 bbls. on the jack from the Weir sand.

In the Licking River district of Magoffin County, the Fynch Oil & Gas Co.'s Nos. 5 and 6 are reported gas wells from the Corniferous sand.

Estill County Completions

In the shallow sand area of Estill County, unknown parties got a 2-bbl. pumper on the I. Henry tract in District No. 8. In the same district, the Superior Oil Corp.'s No. 2 Owen Puckett is a 2-bbl. stripper from the Corniferous sand.

The Mountain Springs Oil Co.'s No. 8 J. B. Rogers, District No. 7, is a 5-bbl. pumper from the Corniferous pay.

CARBON BLACK MAKERS FIND HARD SLEDDING

OKLAHOMA CITY, Okla., Nov. 28.—A widespread demand for natural gas for heating and power purposes that covers virtually every county of Oklahoma, Texas, Arkansas and New Mexico has reached a point where it threatens to drive carbon black manufacturers entirely out of these States. The gas distributing business is passing rapidly to control of a few groups of capitalists who have had recent surveys made of the gas fields of these States and who are convinced that if the product is properly conserved the fields already identified will supply necessary demands for 15 to 40 years. Consequently capital within the last two years has been invested in gas enterprises far beyond all figures of comparison in former years, and the spread of the industry over these States next year doubtless will be unprecedented.

Demands for conservation of gas come from all sources and are increasing. The consumer, the commercial club, the municipal cabinet and the State Conservation Bureau are laboring jointly on a program that will cause the gas fields to serve the greatest number of people for the longest possible period of time. It is this influence that threatens to drive carbon black manufacturers into other fields; if not that, to limit the amount of gas they may use to the least possible minimum.

An effort on the part of these manufacturers to get a stronger foothold in Louisiana caused Attorney General Percy Saint of that State to rule that under an act of the Legislature the State may refuse further permits to carbon black concerns. This is said to have been the first definite step toward controlling the industry in Louisiana, where for a dozen years it has operated as one of the leaders of that State, using gas principally in the Monroe district. Acting on the Attorney General's ruling, Dr. V. K. Irion, conservation commissioner of the State, refused a permit to the J. Smylie Herkness Co. of Pennsylvania and announced that he would reject other applications.

The Fort Worth Gas Co. and the City Council of Fort Worth in filing a protest against a permit being granted by the Texas Railroad Commission to the J. M. Huber Co. of Louisiana, to establish a carbon black plant in Stephens County, have voiced a sentiment of a majority of gas distributing concerns and a majority of municipal cabinets among major cites of the State. The Commission set a hearing on the Huber application for November 30.

A protest against this and other like applications has been filed with the Commission also by Ray Leeman of San Antonio, southwestern manager of the West Texas Chamber of Commerce. Leeman says that while natural gas ordinarily contains 30 to 40 pounds of carbon to 1,000 feet of gas, investigation shows that some concerns are getting only one to two pounds. He found that whereas one Texas company is buying 40,000,000 to 50,000,000 feet daily of surplus gas in a West Texas field, all of that surplus will within 60 days be required by pipe line companies for distribution to consumers. About a dozen carbon black plants are now operating in Texas, he says.

The Board of City Development of Amarillo has filed with the Commission its standing opposition to any gas of the Texas Panhandle, which contains one of the largest gas fields of the Southwest, being used in the manufacture of carbon black.

In Oklahoma and Arkansas carbon black activities have been restricted by conservation bureaus for several years, and the policy of these bureaus is against lifting the restriction. Only a few plants are operating in these States, and most of them in areas where gas would be wasted if not thus used. W.F.K.

HUTCHINSON COUNTY SHOWING

FORT WORTH, Tex., Nov. 28.—Considerable interest is attached to the showing for production in the Gibson Oil Co. well on the Whittenburg Ranch, Hutchinson County. At last reports the well had about 600 to 800 feet of oil in the hole from the sandy lime formation just below 2,800 feet. During recent weeks the area north of the Canadian River in this territory has been growing in favor and the Gibson well being located on the banks of the river has been a location of more than ordinary interest.

HOWARD BUYS BUILDING

The two-story-and-basement brick building at Cheyenne and Fifth Streets in Tulsa, erected by the Ohio Cities Gas Co. and occupied later by the Pure Oil Co. until it moved into the larger building of the Oklahoma Producing & Refining Co. at Cheyenne and Sixth Streets, has been purchased by Oscar O. Howard, and will be occupied as an office building by the companies with which Mr. Howard is affiliated including Duffield & Howard, Damon Oil Co., Britton-Johnson Oil Co., Oil State Gasoline Co. and Howard Petroleum Corp.

TAXED AS CORPORATION

WASHINGTON, D. C., Nov. 28.—The taxation of the Burk-Waggoner Association, a voluntary unincorporated association, by the Federal Government as a corporation, was upheld by the Supreme Court in the case of the Burk-Waggoner Oil Association against George C. Hopkins, Collector of Internal Revenue, which was affirmed. Counsel for the association contended it should be taxed as a partnership and not as a corporation.

For Oil Tight Joints!

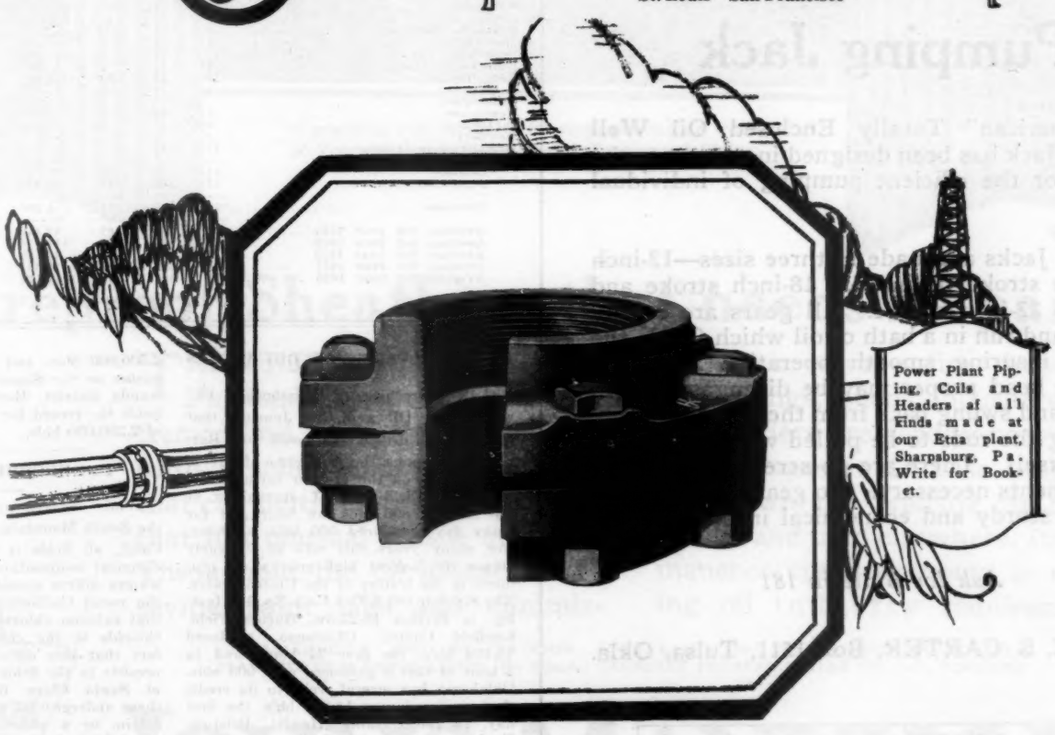
Oil Country Flange Unions

Kelly and Jones oil country flange unions are an investment. They save their cost many times by eliminating leaks and by minimizing time and labor required for repairs and replacements.

They are made of close grained metal, well finished, and present a brass-to-iron contact that remains tight after long usage and will not freeze regardless of how tightly the joint is pulled up.

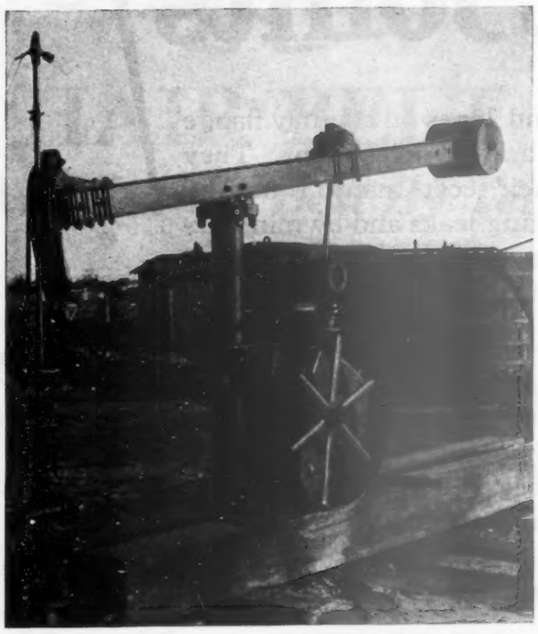
Write for Catalogue "S"

THE KELLY & JONES CO.
Owned by Walworth Company
GREENSBURG, PENNA.
New York Pittsburgh Chicago Cincinnati Buffalo St. Louis San Francisco



Power Plant Piping. Coils and Headers of all kinds made at our Etna plant, Sharpsburg, Pa. Write for Booklet.

AMERICAN
AURORA, ILL.



The New Oil Well Pumping Jack

The "American" Totally Enclosed Oil Well Pumping Jack has been designed in answer to the demand for the efficient pumping of individual oil wells.

American Jacks are made in three sizes—12-inch to 15-inch stroke, 15-inch to 18-inch stroke and 18-inch to 22-inch stroke. All gears are totally enclosed and run in a bath of oil which floods the bearings, insuring smooth operation and long life. The head proper may be disengaged from the cable and swung back from the walking beam, permitting the rods to be pulled without moving the jack itself. There are no screw mechanisms or adjustments necessary. No gears are exposed. Compact, sturdy and economical in operation!

Ask for Bulletin 181

Agent: C. S. CARTER, Box 1511, Tulsa, Okla.

GENERAL OFFICES AND WORKS - AURORA, ILL.
THE AMERICAN WELL WORKS
BRANCH OFFICES

CALIFORNIA OIL FIELD OPERATIONS FOR OCTOBER

According to figures collected by the American Petroleum Institute, Pacific Coast office, total production of crude oil in California for October amounted to 20,015,076 bbls., an average of 645,648 bbls. per day. This is a decrease of 23,111 bbls. per day under September production.

Total stocks of crude and all products in Pacific Coast territory increased during the month 3,013,629 bbls. The total stocks at the end of the month were 151,021,885 bbls. The total stock increase for 1925, up to October 31, was 25,999,921 bbls. Comparative figures as of October 31, 1925, September 30, 1925, and October 31, 1924, are shown in detail.

Sixty-nine wells were completed during the month with an initial daily production of 35,678 bbls., compared with 80 wells completed during September with an initial production of 41,978 bbls.

PRODUCTION

(Figures of production and stocks are in barrels of 42 gallons.)

District—	Barrels per Month	Daily Average Oct., 1925	Sept., 1925	Oct., 1924
Kern River	385,061	12,421	16,025	17,787
McKittrick	174,021	5,614	5,792	5,685
Midway-Sunset	3,107,420	100,239	103,736	109,619
Elk Hills	838,318	27,043	27,003	39,150
Lost Hills-Belridge	141,632	4,569	4,470	4,955
Coalinga	606,913	19,546	20,788	24,653
Wheeler Ridge	31,547	1,018	874	1,014
Watsonville	1,808	58	57	56
Santa Maria	202,962	6,547	7,737	7,359
Summerland	3,990	129	128	144
Ventura-Newhall	1,001,552	32,308	28,206	11,567
Los Angeles-Salt Lake	60,796	1,961	2,025	2,154
Whittier	63,067	2,034	2,049	2,173
Fullerton	412,678	13,312	13,445	11,682
Coyote	652,804	18,155	19,433	20,179
Santa Fe Springs	1,657,852	53,479	53,836	54,909
Montebello	595,974	19,225	18,796	16,930
Richfield	394,799	12,736	11,782	11,541
Huntington Beach	1,391,311	44,881	45,905	40,690
Long Beach	3,234,268	104,331	104,333	136,418
Torrance	1,004,439	32,401	34,778	49,447
Domingues	857,609	27,665	28,792	32,676
Rosecrans	788,544	25,437	24,855	2,302
Inglewood	2,494,514	80,468	94,728	126
Newport	2,197	71	88	.....
Total	20,015,076	645,648	668,759	603,115
September	20,062,763	668,759		
Decrease	47,687	23,111		

STOCKS

	Oct. 31, 1925	Sept. 30, 1925	Oct. Stock Increase	Oct. 31, 1924
Heavy crude heavier than 20° A.P.I., including all grades of fuel	81,287,549	79,762,139	1,525,410	54,601,865
Refinable crude, 20° A.P.I. and lighter	43,401,862	42,487,578	914,284	40,428,912
Gasoline	9,935,079	9,668,725	266,354	10,283,944
Naphtha distillates	6,478,634	6,681,547	*202,913	10,760,302
All other stocks	9,918,761	9,408,267	510,494	5,416,269
Total all stocks	151,021,885	148,008,256	3,013,629	121,491,292

*Decrease.

DEVELOPMENT

District—	New Rigs Up	Active Drill'g	Comp.	Daily Initial Output	Active Prod'g	Abd. Wells— Drls.	Prdrs.
Kern River	1	1	1	100	1,636	...	...
McKittrick	1	8	...	.....	301	...	...
Midway-Sunset	18	48	11	3,479	2,889	10	1
Elk Hills	2	8	7	1,999	226	...	...
Lost Hills-Belridge	..	2	...	.....	322	...	...
Coalinga	2	5	3	23	925	...	1
Wheeler Ridge	..	1	1	116	21	...	...
Watsonville	..	...	...	.....	6	...	...
Santa Maria	..	9	...	.....	274	...	...
Summerland	..	...	...	.....	135	...	...
Ventura-Newhall	4	36	9	15,401	601	3	...
Los Angeles-Salt Lake	..	...	...	.....	386	...	...
Whittier	1	5	1	300	187	...	...
Fullerton	1	8	...	.....	398	...	...
Coyote	..	1	...	.....	215	...	...
Santa Fe Springs	2	1	...	.....	362	1	1
Montebello	1	6	...	.....	159	...	...
Richfield	..	4	2	485	186	1	...
Huntington Beach	1	14	2	319	343	...	2
Long Beach	29	56	10	2,461	562	2	1
Torrance	4	8	8	832	602	...	...
Domingues	..	4	1	1,516	66	...	...
Rosecrans	4	35	6	2,436	103	...	...
Inglewood	6	11	7	6,212	154	5	1
Newport	2	4	...	.....	7	...	...
Miscellaneous drilling	12	97	...	.....	.....	10	...
October	91	472	69	35,678	11,066	32	7
September	77	365	80	41,978	11,093	27	11
Decrease	*14	*7	11	6,300	27	*5	4
Average for year 1924	103	510	103	42,412	10,902	28	21
Average for year 1923	111	759	82	114,690	8,928		24
Average for year 1922	115	605	67	43,700	9,410		17
Average for year 1921	90	536	57	15,631	8,425		14
Average for year 1920	77	403	49	14,125	9,299		13

*Increase.

IN THE MATTER OF BIG WELLS

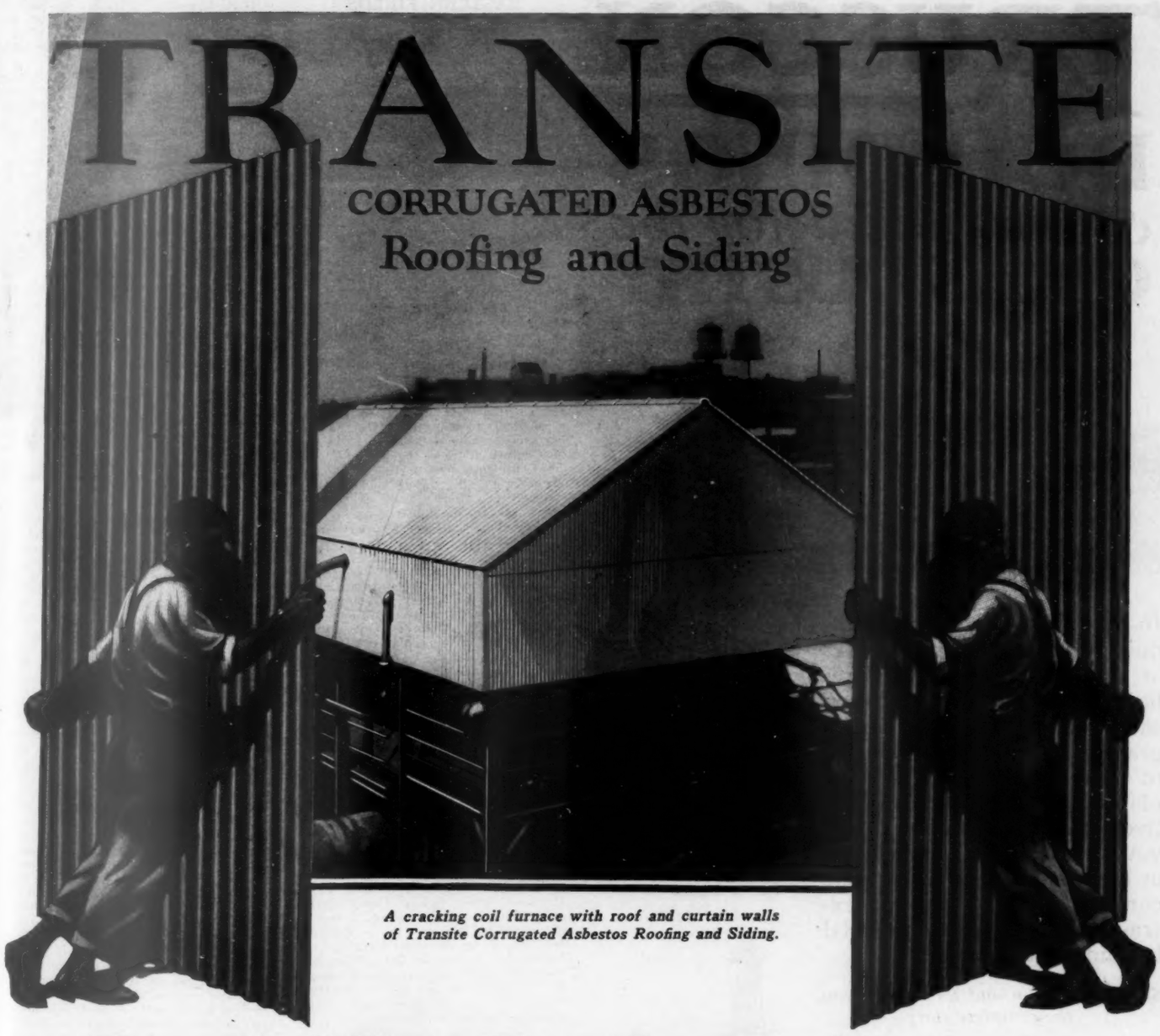
C. D. Greenlee of Pittsburgh, Pa., writes The Oil and Gas Journal that the big well drilled by himself and Barney Forst, under the firm name of Greenlee & Forst, on the Meaney farm in the McDonald Field in 1891, started off at the rate of 800 bbls. an hour and for many days produced 500 bbls. an hour. For many years this was in its early stages the biggest high gravity oil producer in the history of the United States. The Sinclair Oil & Gas Co.'s No. 19 Hartley, in Section 18-22-3w, Garber Field, Garfield County, Oklahoma, produced 18,194 bbls. the first 24 hours and in 1 hour of that it produced over 900 bbls. Oklahoma has several wells to its credit that produced over 14,000 bbls. the first day, in the Cushing, Hewitt, Bristow, Tonkawa and Garber fields. One short-lived well in Osage County drilled by the Minnehoma Oil Co., was estimated at 14,000 bbls. The Gypsy Oil Co.'s great well on the Jackson Barnett farm in the Cushing Field, completed in 1916, holds the high-grade oil record for total production in the Mid-Continent, over 2,500,000 bbls. and the same company's gusher on the Shumway farm in the Towanda district, Butler County, Kansas, holds the record for Kansas with a total of 2,250,000 bbls.

UNDERGROUND WATER

While engaged in a detailed study of the South Mountain and Shiells' Canyon, Calif., oil fields it was found that the chemical composition of the underground waters differs considerably from that of the usual California oil field brines, in that calcium chloride, instead of sodium chloride is the chief constituent. The fact that this difference in composition persists in the fields along the south side of Santa Clara River indicates that these underground waters had a different origin, or a somewhat different subsequent history, from the waters in other fields, both in Ventura County and other parts of the State. Although calcium chloride waters occur in other parts of the world they are far from a common type of oil field brine, and they, therefore, seem to owe their origin to certain special conditions.

TRANSITE

CORRUGATED ASBESTOS Roofing and Siding



A cracking coil furnace with roof and curtain walls of Transite Corrugated Asbestos Roofing and Siding.

Fireproof Sheathing that needs no paint

TRANSITE is asbestos fibre and Portland cement united under tremendous hydraulic pressure to form a solid, homogeneous sheet that can neither burn nor rust and that has unusual tensile strength. Throughout the oil industry it is saving paint bills and minimizing risk where fire threatens.

Buildings, sheds, housings and fire barriers are readily constructed of Transite. In case they are torn down, the Transite can be removed and used elsewhere. Its permanence spells economy in meeting oil industry requirements.

JOHNS-MANVILLE INC., 292 MADISON AVENUE AT 41st STREET, NEW YORK CITY
BRANCHES IN 64 LARGE CITIES For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., TORONTO

Through Asbestos and its allied products
INSULATION
BRAKE LININGS
ROOFINGS
PACKINGS
CEMENTS
FIRE PREVENTION PRODUCTS

JOHNS-MANVILLE
Oil Industry Department

TRUSCON

TRUSCON STEEL CO.

BUILDINGS

Standardized for the OIL INDUSTRY

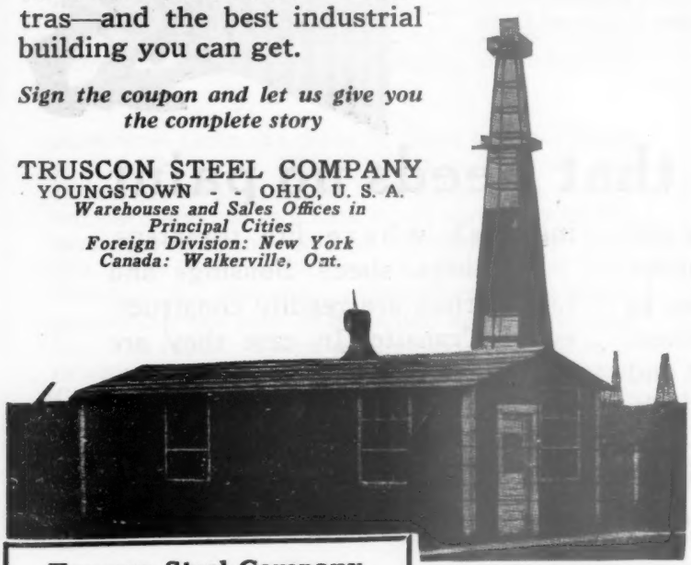
In every division of the oil industry, whether for purposes of prospecting, producing, refining or marketing, Truscon can not only give you the most practical building but also the most economical. Truscon plans the building for you, delivers it to you, erects it for you, saves you time and money at every step. One price—one contract—one source—no extras—and the best industrial building you can get.

Flat Roofs
Pitched Roofs
Monitors or
Sawtooths

Interlocking
Steel Roof or
Ferrodeck
Insulated and
Waterproofed

Sign the coupon and let us give you the complete story

TRUSCON STEEL COMPANY
YOUNGSTOWN - - OHIO, U. S. A.
Warehouses and Sales Offices in Principal Cities
Foreign Division: New York
Canada: Walkerville, Ont.



Truscon Steel Company
Youngstown, Ohio
Please send me Catalog and full information on Truscon Standard Buildings
to be used for .....
Length ..... Width ..... Height .....
Name .....
Address .....

Truscon Buildings can be had in sizes and types to meet every need. Any number of Truscon Steel Windows and Doors placed where you want them complete the perfect adaptability of these buildings.

EASTERN FIELDS

(Continued from Page 50)

test on the J. E. Kimble farm is a gasser in the salt sand.

In Liberty district, Marshall County, the Manufacturers Light & Heat Co.'s second test on the Thomas and Sarah Blake farm, is a 2-bbl. pumper in the Gordon sand. The Wasmuth & Kellihan Oil Co.'s test on the Catherine V. Haslett farm is dry and abandoned. In Liberty district, the Blake Oil & Gas Co. has a 15-bbl. pumper in the Gordon sand at a test on the D. V. Blake farm.

On Meadow Run, Grant district, Ritchie County, L. N. Rinehart and others have completed in the Big Injun sand a test on the Daniel McGinnis farm and good for 60 bbls. a day. On Rush Run, Smithfield district, Roane County, Godfrey L. Cabot has completed in the Big Injun sand a test on the A. J. Keffer farm and good for 250,000 feet of gas.

Light Pumper in Lewis County

In Courthouse district, Lewis County, W. E. Turner & Co. has completed a test on the J. H. Livingston farm. It is good for 10 bbls. a day in the Gordon sand at a total depth of 2,614 feet. In Central district, Doddridge County, the Continental Oil & Gas Co. has a duster in the Big Injun sand at No. 3 on the C. P. Hudson farm. It has been abandoned. In West district, same county, the Columbia Carbon Co. has a gasser in the Big Injun sand at No. 18 on the Lewis Maxwell farm.

The Pittsburgh & West Virginia Gas Co. has completed a Big Injun gasser at a test on the Hester McGinnis farm, in Glenville district, Gilmer County. In Grant district, Ritchie County, R. C. Jackson & Co. have a gasser in the Maxon sand at a test on the Loomis heirs' farm. In the same district, the gas at Mellon Brothers' test blew out and it has been abandoned. In Union district, the Wolf Pen Oil & Gas Co.'s test on the S. N. Keith farm is a duster in the Big Injun sand. V. B. Darby has a gasser in the second salt sand at a test on the D. M. Miller farm, in Walker district, Wood County. In Union district, Tyler County, J. D. Holmes has a dry hole in the Big Injun sand at a test on the Harriett Parker farm. In the same district, W. J. Cleary & Co.'s test on the Granville Gorrell farm is dry and abandoned.

On West Fork River, 1,000 feet northeast of No. 28, on the Roberts, Pell & Bewman farm, Spring Creek district, Wirt County, the Federal Oil & Gas Co. has completed and shot in the Big Injun sand No. 29 on the same farm and good for 10 bbls. a day. At Metz, Mannington district, Marion County, R. S. Monroe & Co. has completed in the Big Injun sand a test on the Koen farm. It is a gasser good for 500,000 feet.

Clay County

In the new Big Injun sand development in Henry district, Clay County, the Virginian Gasoline & Oil Co. has completed in the Big Injun sand No. 8 on the J. B. Casto 260 acres and good for 30 bbls. a day. This is about the average size of the wells at the time of completion in this district. There are now eight wells drilling in this development.

Kanawha County

On Wolf Pen Run, Elk district, Kanawha County, the Oakland Development Co. has completed a test on the Elizabeth Summers farm. It is a gasser good for 1,300,000 feet. On Poco Fork of Little Sandy River, the United Fuel Gas Co. has completed in the Big Injun sand No. 3 on the C. Halstead farm. It is a gasser good for 490,000 feet. On the same stream and in the same district, the same company has the rig completed for a test on the W. L. Edens farm.

On Chartiers Creek, Grant district, Cabell County, located 2,000 feet southwest of No. 7 on the R. C. Kilgore farm, the Harshbarger Oil & Gas Co. has completed a second test on the Mary J. Kilgore farm. It is a gasser in the Berea grit good for 1,500,000 feet. On Two-Mile Creek, same district, one-half mile west of the Aetna Oil & Gas Co.'s test on the H. L. McCoy farm, the same company has the rig completed and started to drill a test on the William Kirtley farm. On Little Buffalo Creek, Carroll district, Lincoln County, 2 miles west of the test on the J. F. Grass farm, the Columbia Gas & Electric Co. has started to drill a test on the J. W. Reynolds farm.

On Steel Run, Grant district, Ritchie County, Ira Williams & Co. have completed and shot in the Big Injun sand No. 29 on the West Virginia tract. It it makes a producer it will be very light. On Myers Fork, same district, J. F. Rector & Co. have completed a test on the W. W. McFarlan farm and dry in the same formation. In Lafayette district, Pleasants County, located 3 miles southwest of Hebron, George Bebout has completed through the Big Injun sand a test on the N. J. Lamp farm. It is a duster.

Starting New Work

On Tanner's Creek, DeKalb district, Gilmer County, Zinn & Co. have started to drill a test on the Asa Hardman farm, located 2,000 feet west of the test on the C. B. Vannoy farm. In Elk district, Harrison County, located 10 miles south of Clarksburg, the Standard Gas Co. has a rig up on the W. F. West farm. One-fourth mile south of Goodhope, Union district, Harrison County, the Hope Natural Gas Co. is drilling an old Speechley sand gasser on the W. S. Burnside farm to the Benson sand. They have now reached a depth of 3,550 feet.

Ritchie County Tests

Ritchie County has probably more new work starting than any other county. In Murphy district, C. W. Baker and others are rigging up on the James A. Hartman farm. In Grant district, the Griffin Producing Co. has started to drill on the Harvey Marsh and Stout-Jackson farms. In the same district, the West Virginia Central Gas Co. has started to drill on the John F. Brock farm. In Union district, Tyler County, Dr. George T. Gale has started to drill on the Sarah Thistle farm. L. C. White & Co. are still fishing at 1,800 feet on the E. L. Newland farm, in Union district, Pleasants County. The Rice Oil Co. is due in the Cow Run sand on the J. E. Bramer farm. In Troy district, Gilmer County, the Star Oil & Gas Co. has rig material at locations on the S. B. Wiseman and Porter G. Nutter farms.

In Grant district, Pleasants County, the Holdren Farm Oil Co. has started to drill a test on the R. F. Holdren farm. In the same district, Morgan & Coen are drilling on the Hammett heirs' farm. In Curry district, Putnam County, the Grant Gas Co. is drilling a test on the Lee Dent heirs' farm. In Duval district, Lincoln County, the same company is building a rig on the Thomas F. Nelson farm. In Carroll district, the Commercial Realty Co. has placed a drilling machine at a location on its own property. In the same district, C. C. Wolf has started to drill a test on the J. A. Caldwell farm. In Sheridan district, the Columbia Gas & Electric Co. is drilling on the Rose Nida farm.

Southwest Pennsylvania

In South Strabane Township, Washington County, located in the fifth sand development that attracted some attention last year, E. H. Tague and others drilled a second test on the Quail Sisters' farm through all sands and dry. In the same locality, William Dallmeyer and others are drilling a test on the W. H. Davis farm.

In Perry Township, Green County, the Peoples Natural Gas Co.'s test on the John Renner farm is a gasser in the Bayard sand. In Springhill Township, the Fox Oil & Gas Co. has a Gordon sand gasser at No. 3 on the Thomas Shook farm.

Located in South Beaver Township, Beaver County, the Big Beaver Gas Co.'s No. 7 on the Myrtel Jenking farm is a fair gasser.

NEW FRENCH PRODUCER

The Exchange Telegraph Co. reports that three tons of petroleum have been extracted during five days from the new oil well discovered near Riom, in the Department of the Puy de Dome, which is worked by the State. The French Minister of Mines and other officials and experts are visiting the spot, and it is expected that further drilling operations will be actively proceeded with.

A good thread means a tight pin

JONES U.S. STANDARD
A GOOD THREAD.

ANOTHER STANDARD
A POOR THREAD

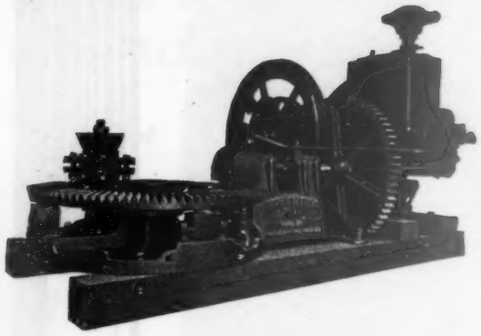
A poor thread means a broken pin!

That's why you should insist on Jones Sucker Rods with the United States Standard threads

They Fit.

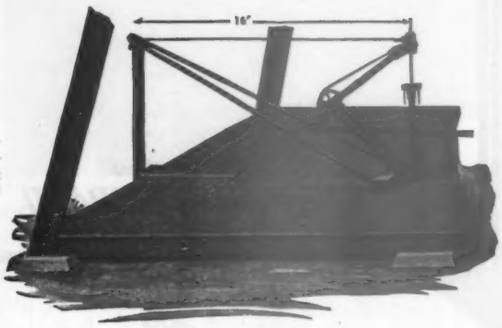
THE S·M·JONES CO.,
TOLEDO, OHIO.
The Oldest Manufacturers of Steel Sucker Rods in the World

LIGHTNING
OIL FIELD SUPPLIES
PUMPING POWERS, JACKS, STUFFING BOXES, ETC



PUMPING POWERS

We build all sizes of geared powers, both belt driven and direct connected, for all conditions.



Our long stroke pumping jacks increase production and operate with a slow steady motion.

The Lightning Wire Line Beam Hanger is scientifically designed and meets a real need. Handles a stroke 7' long.

Lubricator Stuffing Box

Sure Grip Polish Rod Clamp

Heavy Duty V Swing Adjustable Legs

Stocks for Quick Delivery

Wichita Falls, Tex., Grover C. Johnson
Tulsa, Okla., B. V. Emery & Co.
Los Angeles, Cal., B. Hayman Co.
Casper, Wyo., General Engineering Co.
Bradford, Pa., Combination Eng. & Com. Co.
All Republic Supply Stores
Houston, Texas, Harry B. Shine

Kansas City Hay Press Co.
Kansas City, Mo.

INSISTED ONE-TENTH ROYALTY WAS GREATER THAN USUAL ONE-EIGHTH

By J. L. Dwyer

"One boob may die but deathless
Is the royal race of hicks.
When Ahab went to Ascalon
They sold him gilded bricks."
—Selected.

Several centuries ago in the dim dark days before movie directors could find a good excuse for wearing leather puttees, and drillers failed to see the advantages of a manicurist working on their digits occasionally; an ancient sage chirped something about getting important in one's own locality being a tough job; and down the centuries has come the saying that "Honor is without profit in one's own country."

In possibly no other line of activity is this as true as in the leasing end of the oil business, where the local boys constantly work at a disadvantage. The farmer has seen Amos graduate with honors from the Cranberry Corners school, taup up postgraduate work in the local grain elevator, and finally emerge triumphant to matriculate into a real estate, insurance, mortgage and loan business of his own (oil and gas leases bought and sold), but when it comes to entrusting Amos with the gigantic task of placing an oil and gas mining lease upon his 160 acres for the sum of $1 an acre, the tiller of the soil is invariably bound to balk.

True enough, Amos may be displaying certain signs of progress in the world, and by now he is a trustee of the church, the star debater of the crackerbarrel congress at Cranberry Corners, and an assiduous reader of the Literary Digest, but when it comes to getting the farmer to place his name on the dotted line of the lease, Amos is a total loss without insurance. Listen to an actual experience, and try this story on your bifocals.

In northwestern Oklahoma, close to Ponca City, there was a farmer who presented a mighty impervious front when approached about an oil and gas lease upon his land. The leaser who tried to "ink" him was a local product, born and raised in the vicinity. He attempted every line of reasoning, and much eloquence that was formerly useful to the high school debating society was rendered null and void as far as progress on the farmer was concerned. He would not sign the lease and that was that.

After weary hours of discussion, the lease man finally learned the objection that the farmer had to the lease. It was the royalty clause, and he vowed by the memory of John Deere that never would he sign a lease which only gave him one-eighth of the oil and gas. This seemed to make it tougher on the leaser, and he carefully inquired as to what was the farmer's idea about the proper amount that should be paid the land owner as royalty.

Quick as a flash and clear as a bell came the answer: "I want a one-tenth royalty or I won't sign the lease."

In vain the leaser argued, trying to prevail upon the farmer that one-eighth was more than one-tenth, but the argument was wasted.

"Ten is more than eight, and one-tenth is more than one-eighth, and you or no other slicker can tell me different."

The leaser then decided to have the farmer talk it over with his banker, to get the straight of the proposition, but here again rough sailing was encountered.

"I've knowed them bankers all my life, and I've owed them bankers all my life. Them bankers ride around in closed cars, and the best I can travel in is a pair of hard tailed mules. I won't talk to them; they have too much interest in me."

As a last resort the leaser offered to give the farmer one-ninth as a royalty, but he had met the famous immovable body, and the lease was written with the one-tenth royalty clause.

It is a well known fact that in the matter of oil and gas leases the gaping rustics have always exhibited a disinclination to do business with anyone they have known all their life. In the entire Mid-Continent Field there was no better lease man than the late J. Stanley Moore. He was one of the brightest, keenest, quickest and squarest leasers that the industry ever saw. He was born close to Homer, La., and naturally when that territory came into prominence and a boom followed, he bought a ticket, and returned to the scenes of his boyhood, expecting to transact a good amount of business. In a short time he returned to Tulsa, and during the period he spent in the Louisiana oil fields, he failed to get a single lease. He made a comfortable fortune in Oklahoma, but in his native Louisiana, he informed the writer that he never made a cent in oil transactions.

And so to a large extent in the taking of leases, the stellar honors go to the boy from out of town—the boy who has the Cadillac atmosphere of the big city about him—and while judicially placed investments occasionally reward Elmer and Amos and their brethren for the time spent in the tall timbers, the odds all are in favor of their spending their days as debaters in the crackerbarrel congress, and writing insurance policies with only the memories of boom days to furnish reminiscences when a newcomer arrives to join the circle. Like bank accounts, it's a case of "The survival of the fattest."

THREE MORE DEEP TESTS FOR EASTLAND COUNTY

FORT WORTH, Tex., Nov. 28.—Locations have been made for at least three additional deep tests to be put down in Eastland County. One of these is to be drilled by Lobaugh and others on the Massengale farm about 2½ miles southeast of the town of Eastland. It is reported that drilling on this well will be started within the next few days.

On the Blackwell farm, north of Gorman in the south part of the county, Kirk and Brewer, well known operators have made a location and are moving in materials. Kirk and Brewer have achieved a signal success in their operations in the Gorman territory and the outcome of this new wildcat is of more than ordinary interest.

In the Gorman district about 15 miles south and east of Eastland the Halmack Oil Co. has made location on the Allison farm. No definite statement has been made as to when actual drilling will be started on this test, though it is understood to be a test for the deeper horizons.

RESUME WORK ON WILDCAT

FORT WORTH, Tex., Nov. 28.—Willis and associates, of Forth Worth, have resumed drilling on what is known as the Big Mesa well in the eastern part of Upton County, at a depth just below 2,400 feet. This well was started several months ago but due to various difficulties stood idle for some time. Recently, California capital has become interested in the well and an early completion of the test is now expected. This location is about 12 to 15 miles west of the Big Lake Field in Reagan County and in an area that has for some time been regarded as favorable for production.

CONTRACT FOR DEEP TEST

FORT WORTH, Tex., Nov. 28.—George M. Church and associates have taken the contract for a deep test well to be drilled on the Williams Ranch on the line of Schleicher and Sutton Counties. Drilling operations are to be started within a few days as materials are being moved to the location now, according to late field reports. This location is about 50 to 60 miles south of the city of San Angelo and in the territory that is coming in for a tremendous wildcat play this winter and next spring.

YOUNGSTOWN PIPE

A product of

Youngstown sheet & tube

Company

Manufacturers of--

Casing, tubing, and

Line Pipe.

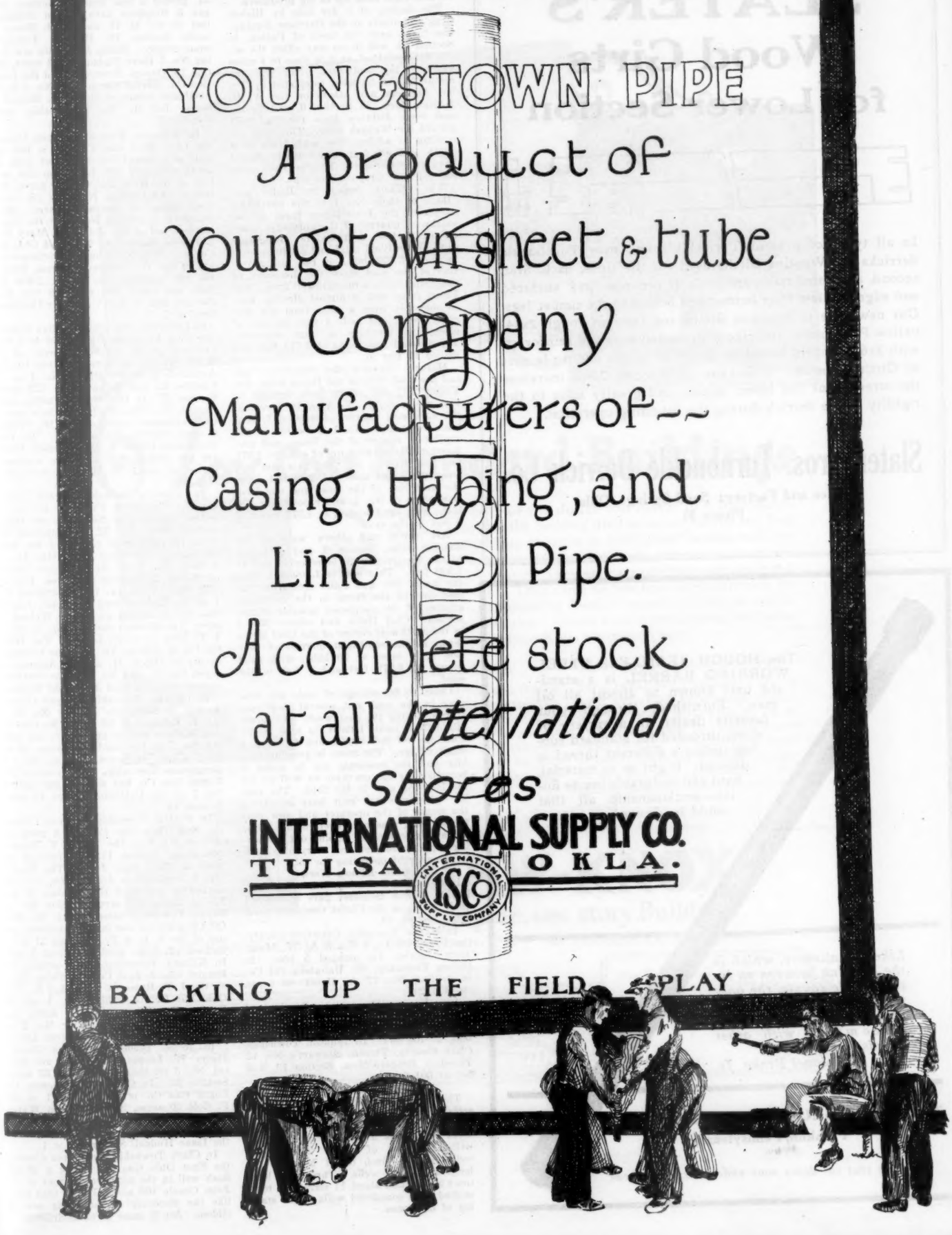
A complete stock

at all *International*

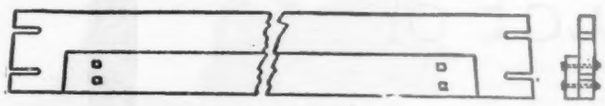
Stores

INTERNATIONAL SUPPLY CO.

TULSA OKLA.



SLATER'S
Wood Girts
for Lower Section



In all types of present Turnbuckle and near Turnbuckle derricks the Wooden Girths used for the sides, back, first, second, and third raise, are made of common 2x12" surfaced and edged yellow Pine lumber and bolted to the timber legs. Our new type of Wooden Girths are made of rough 2x14" yellow Pine lumber full size with slotted ends and reinforced with 2x6" bumpers bolted on inside of Girths and made part of Girth assembly. This type of Wooden Girth increases the strength of the lower section and greatly adds to the rigidity of the derrick during the spudding operation.

Slater Bros. Turnbuckle Derrick Co.

Office and Factory: Sand Springs, Okla.
Phone 91

The HOUGH SEAMLESS STEEL WORKING BARREL is a standard unit known to almost all oil men. Furnished, through your favorite dealer, in a variety of sizes, threaded for standard tubing unless a different thread is desired. Right as to material, hard and endurable inside finish—workmanship all that could be desired.

Like the alimony, which is the last link between an incompatible couple, the only thing which H O U G H pumping specialties have in c o m m o n with other brands is the price.
—Colonel Drake, Jr.

THE CHARLES N. HOUGH MFG. COMPANY
Franklin, Pennsylvania

Products that cut down your underground overhead

CENTRAL WEST

(Continued from Page 54)

others on the J. Steargeon farm, Section 12, and right close up to big producers.

The finding of a dry hole by Risley, Gray and others on the Harrison Buchannan farm, near the town of Patton, in Section 33, will in no way effect the active Stillwell Pool, as it is close to 4 miles away to the southwest. Nor will the recent failure reported completed by Tyler, Andrews and others on the W. O. Johnson farm, in Section 6, and to the east some distance from the big wells toward the Wabash river. This well, according to advice, was sent down to a depth of 2,400 feet, which really should have encountered the Trenton Rock sand but did not, if reports are true.

The drilling deeper by Risley and others of their No. 1 in the northwest corner of the John Breen farm, in the southwest quarter of the northeast quarter of Section 2, from the Bridgeport sand to the Biehl sand and getting a production of 375 bbls., is the real sensation of the pool since the discovery of the initial well on the Stillwell farm. The Breen farm well is almost directly west considerably over a mile from the discovery well, and adds a vast amount of productive territory in that direction. Top of sand was found at 1,377 feet and drilled 11 feet in.

Midway between the discovery well and the good well on the Breen farm, Joe Young, Jr., and others have brought in two wells on the N. Alka 16 acres, in the northwest quarter of Section 1, Wabash Township. No. 1 is located in the southwest corner of the lease, and produced 450 bbls., with top of sand at 1,377 feet and 10 feet in. No. 2 is 600 feet from the south line and 200 feet from the west line of the lease and one location north of No. 1, and reported at 250 bbls., with sand topped at 1,377 feet and 8 feet in the sand.

Art Smith and others' well on the Johnson farm, Section 6, and northeast of the discovery well, is reported dry at 1,820 feet. This well is 1,200 feet from the north line and 1,400 feet from the east line of the farm, in the northeast quarter of the northwest quarter of the section. Cisil Heirs and others' No. 1 in the northwest corner of the Cisil Heirs farm, in the southwest quarter of Section 1, is rated at 70 bbls., with sand topped at 1,379 feet and 7 feet in the sand.

Close to 30 strings of tools are running in the pool and several new ones started during the past week. Allendale, although a small hamlet, is now seeing what the oil industry means for even a small village. The town is growing rapidly and the residents try to make it homelike for the operator as well as for the laboring men in the field. The supply companies are kept busy supplying the wants of the operator and now that the farming season is over, many teams are available for the helping out of moving supplies, lumber and everything used in the way of operating for oil.

Other Illinois Work

In Centralia Township, Marion County, Hefter, Joy & Houssler have abandoned their No. 4 on the Christ Oesterich property, Section 19.

In Martin Township, Crawford County, the Frost Oil Co.'s No. 3 A. W. Mann farm, Section 12, pumped 5 bbls. In Oblong Township, the Mahutska Oil Co. is drilling No. 17 A. Heedt 40 acres, Section 29.

In Union Township, Cumberland County, Campbell, Peck and others' No. 2 J. G. Paden farm, Section 1, pumped 7 bbls. at 465 feet. In Johnson Township, Clark County, Thomas Stewart's No. 12 Theodore Bennett farm, Section 13, was dry at 601 feet.

Central Ohio

The gas companies are maintaining activity in developing gas territory in the Central Ohio Field, where during the week there was a total of 9 completed wells reported, of which 2 were oil wells, with a flush of 51 bbls., 2 dry holes and 5 gas wells. Three new locations staked and about 17 strings of tools shifted from completed wells to the starting of new ones.

In Hanover Township, Ashland County, the Logan Gas Co.'s test, 900 feet from the north line and 625 feet from the east line of the Mary Beary 98 acres, Section 21, proved a real duster. Burton, Morgan & Stephens have started drilling a test on the M. H. and J. H. Slater 56 acres, Section 10, Mohican Township, same county. Hulse & Kundtz are drilling No. 1 Dave Umbaugh 173 acres, Section 19, Orange Township, and the Logan Gas Co. started the drill at No. 2 in the northeast corner of the S. L. Markel 50 acres, Lot 1, Troy Township, same county.

In Jefferson Township, Knox County, the Ohio Fuel Gas Co. has a fair gas well at a second test 1,250 feet from the south line and 300 feet from the west line of the Rilla Rabjohn 50 acres, Section 8, and starting No. 3 on the northwest corner of the same farm. Same company is drilling No. 1 on the northwest corner of the John and Mary Rice 159 acres, Section 8. The East Ohio Gas Co. is drilling No. 2 on the northeast corner of the W. I. Greer 40 acres, Section 13, and starting No. 1 test 1,600 feet from the north line and 300 feet from the east line of the C. Arwiller 197 acres, Section 7.

In Lafayette Township, Medina County, the Ohio Fuel Gas Co. drilled in a nice gas well in the northeast corner of the R. O. Wheeler 37 acres, Section 10, and Arthur & Mills are drilling No. 1 on the Charles E. and Edna Jones 123 acres, Section 13. In Hinckley Township, same county, the Ohio Fuel Gas Co.'s test in the northeast corner of the W. Warner 6 acres, Section 19, was dry. In York Township, Dillon & McFrederick Brothers are drilling No. 1 on the southwest corner of the J. R. Mays 53 acres, Section 24.

In Columbia Township, Lorain County, the Empire Gas & Fuel Co. hit an excellent gas well at No. 3 on the Oliver Leitner farm, Lot 32, and starting No. 4 on the northwest corner of the same 60 acres. The East Ohio Gas Co. is drilling No. 1 on the southwest corner of the J. J. Squires 56 acres, Lot 34. The Ohio Fuel Gas Co. is drilling No. 1 on the Richard Putt 160 acres, Lot 29, also No. 1 drilling on the J. Weitzel 27 acres, Lot 27, and starting No. 3 on the I. F. Ring 24 acres, Lot 32. The Wiser Oil Co. is drilling No. 2 on the northeast corner of the J. M. and A. Ashman 40 acres, Lot 28, and No. 4 on the northeast corner of the G. and J. Herold 70 acres.

In Cannan Township, Wayne County, Arthur & Mills are drilling No. 1 on the J. Brinkerhoff 87 acres, Section 30, and William Denny and others are drilling No. 1 on the southeast corner of the Earl Kinch 41 acres, Section 13. In Baughman Township, same county, the Logan Gas Co. has a light gas well at No. 1 on the Catherine Geiser 41 acres, Section 18.

In Prairie Township, Holmes County, the East Ohio Gas Co. has a good gas well at No. 4 on the Wayne F. Kendall 168 acres, Section 17, and nearing the sand on No. 5 same farm. The Empire Gas & Fuel Co. is drilling No. 1 in the northwest corner of the William S. and Elvina Baker 127 acres, Section 16. In Ripley Township, same county, the Pure Oil Co.'s second test in the southeast corner of the V. D. & E. Williams 27 acres, Section 12, looks good for about 3 bbls. In Kilbuck Township, same county, the Empire Gas & Fuel Co. is drilling No. 1 on the J. P. Reese 82 acres, Lot 5. The Ohio Oil Co. is drilling No. 1 on the Robert and Carey Reed 100 acres, Lot 22, and made a location for No. 2 on the Albert W. Schnoover 40 acres, Lot 19.

In Rome Township, Athens County, Harry W. Leeper and others are drilling No. 3 on the E. S. Byron 57 acres, Section 32. In Carthage Township, the Logan Gas Co. is drilling No. 1 on the F. Cole 40 acres, Section 5. In Waterloo Township, same county, the same company has a light gas well at No. 1 on the Isaac Hudnell 83 acres, Lot 1.

In Clark Township, Coshocton County, the East Ohio Gas Co. struck a 48-bbl. flush well in the northwest corner of the John Concle 100 acres, Lot 2, that looks like the discovery of something new in oildom. No. 2, same farm, is drilling.

EXTERIOR

Blaw-Knox Building used for storage by W. E. Sexton, Contractor, of E. Williston, L. I.

INTERIOR

Low Cost Standard Buildings

Garage for Worthington Pump Co., Harrison, N. J.

Foundry for Roessing Bronze Co., Etna, Pa.

Sub-Station for Detroit Edison Co., Roseville, Mich.

The largest part of the dollar you invest in a Blaw-Knox Building goes into the building itself to secure quality and long life. These buildings are LOW in FIRST COST because standard design and quantity production have reduced costs to the lowest possible figure. They are easy to erect, rust protected, firesafe and weather-tight. They come to you from stock all ready for erection. Blaw-Knox Engineering Service extends to you its fullest cooperation without obligation. Before even contemplating any other type of building, write for Blaw-Knox plans and prices.

All Steel Buildings

Structural Steel standard frame with patented, copper bearing galvanized steel guaranteed roof, and walls, sash, windows, hinged or sliding doors to meet your requirements. Can be enlarged or changed in shape after erected without sacrificing present structure.

Masonry and Steel Buildings

Structural Steel standard frame with patented, galvanized copper bearing steel guaranteed roof. Everything ready for the masonry slides or ends. A building as good or better than one carefully designed to meet your specifications and at a decided SAVING IN FIRST COST.

The Blaw-Knox Guaranteed Galvanized Roof is the "lowest cost per year of wear" roof that is made.

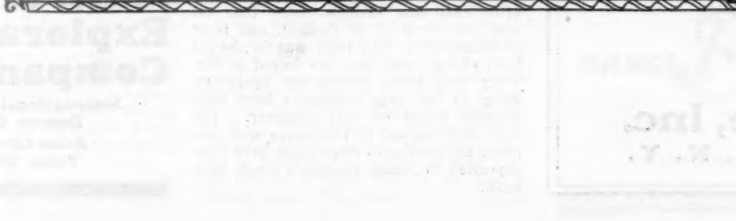
BLAW-KNOX

All purpose, one story Buildings

BLAW-KNOX COMPANY, PITTSBURGH, PA. 608 FARMERS BANK BUILDING

District Sales Offices

NEW YORK BUFFALO · CHICAGO BIRMINGHAM · DETROIT BALTIMORE · CLEVELAND 516 UNION BLDG. · PHILADELPHIA 231 No. 12th St.



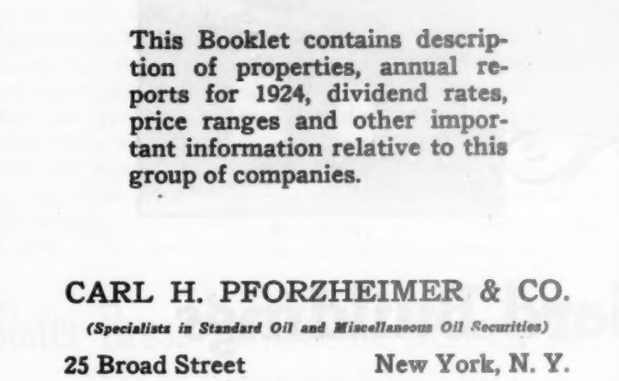
Blaw-Knox Company, Pittsburgh, Pa.
Without obligation, send me your literature. We have in mind a building
____ ft. long ____ ft. wide,
to be used for ____
Name ____
Address ____ O&GJL

New
23rd Edition

STANDARD OIL BOOKLET

This Booklet contains description of properties, annual reports for 1924, dividend rates, price ranges and other important information relative to this group of companies.

CARL H. PFORZHEIMER & CO.
(Specialists in Standard Oil and Miscellaneous Oil Securities)
25 Broad Street New York, N. Y.



TANK CARS
FOR ALL PURPOSES FOR
LEASE OR SALE

Substantial additions to our fleet have just been necessary in order to keep pace with the demands of our growing business.

Quick Service to All Points

Shippers' Car Line, Inc.
165 Broadway, New York, N. Y.

NITROGLYCERIN HEAD OCCUPATIONAL DISEASE

"Nitroglycerin head" is the new name given to the malady which afflicts those engaged in making explosives containing nitroglycerin. Very few persons are immune from it; warm weather and addiction to liquor make it worse, according to American Medicine. The ailment, of course, is the result of nitroglycerin poisoning.

During the period of the war, says the writer, when speed sidetracked caution in the manufacture of explosives, many workers were overcome as a result of handling chemicals whose hazards were more or less unfamiliar. At that time Dr. Alice Hamilton reported upon the effects of nitroglycerin upon the workers. She described the depressing effect of this substance upon the vascular system, with the resultant dilation of the blood vessels, which was responsible for severe headache, associated with insomnia and occasional nausea and vomiting.

"Fortunately, workers develop some degree of immunity from nitroglycerin poison by daily contact with the explosive, but this immunity is lost quickly after discontinuance of the handling of the substance. Luckily, despite the severe headache, permanent impairment of health has not been noted, and the headache appears to be a transitory symptom, wholly dependent upon exposure to the action of the nitroglycerin.

"The headaches induced by nitroglycerin do not produce fatalities, but they indicate a form of industrial poisoning which affects the daily comfort and energy of workers. In severe chronic nitroglycerin poisoning, inflammations and ulcerations of the skin may occur. The headaches indicate, however, an acute condition and serve to point out the necessity for protecting the workers against further exposure to the depressant action of the nitroglycerin.

"Nitroglycerin is an exceedingly valuable therapeutic agent, and its worth in decreasing circulatory tension is generally recognized. The occurrence of headache following its demonstration for medicinal purposes is recognized as an index of full physiologic effect. The occupational diseases incident to handling it in the preparation of explosives, such as dynamite and powders, as cordite, has been termed by Laws the 'nitroglycerin head.' Immunity to the action of nitroglycerin is rare, and susceptibility to it apparently is increased by warm, humid weather, as well as by indulgence in alcoholic beverages."

RICH ESTATE AWAITS ROBERT W. BRADLEY

SHREVEPORT, La., Nov. 28.—A search is being instituted for Robert William Bradley, who disappeared from El Dorado some years ago, by the administrator of the Bradley estate, in order that he be put in possession of a fortune now amounting to $200,000 and which is daily increasing, due to oil production. Robert Bradley, formerly Robert William Sanders, was adopted by the Bradleys when he was quite young, having lost both parents. When the boy was 7 years old his foster father died, leaving a will in which Robert was made sole heir to 250 acres of very poor farm land in Union County, Arkansas. After the death of Mrs. Bradley, Robert left the farm and went to El Dorado to live with his guardian, but a circus proved such an attraction that he left with the circus. He was finally located and brought back home and placed in school, where he remained until he was 15. Again he disappeared, and it was shortly after this last disappearance that oil was discovered at El Dorado, and later at Smackover. The farm was in the oil field, and at one time was leased to Pat Marr and other Smackover operators. Many of the large companies have been granted leases on this property. The land still belongs to the estate and royalties amounting to large sums have been deposited to young Bradley's credit in a bank.

Get the Core and Know All!

3000 Feet of Facts
Accurate, Reliable Facts

What conditions will your drill encounter 3000 feet below the derrick—or at any point in between?

From a study of outcroppings, from the logs of nearby wells, you can determine these conditions with some degree of accuracy. But this is not a time to base the expenditure of $50,000 or more on guesswork.

You need facts—accurate facts established from the study of the actual strata underlying your lease—before launching your resources into a development campaign.

If you could go from top to bottom of a 3000-foot hole, examining each stratum of earth, you would obtain the same information that you would secure from the cores unearthed by the diamond drill.

These cores show in exact sequence the various layers pierced—their nature, depth, thickness and dip. They are there before your eyes—for you to handle, examine, study—today, tomorrow, a year from now.

They will tell you whether or not there is oil present. Outline the shape and extent of the pool. Tell you where to place your wells to avoid drilling "off structure." How to space your wells to increase the life of your lease and decrease operating costs.

Diamond Drill Cores

Diamond drilling, while new in oil development, has proven its worth through increased economies, prevention of failures and the substitution of knowledge for guesswork at every stage of operation.

Let us tell you what it can do for you in your particular case.

Mineral Exploration Company
International Trust Bldg.
Denver, Colorado
Atlas Life Building
Tulsa, Oklahoma

NORTH LA.-ARKANSAS

(Continued from Page 36)

100 bbls. of oil, 75 per cent salt water, at 1,514 feet.

Union County Drilling

Development in the Union County area resulted in a better showing than there has been made for several weeks in this territory, with 11 completions, 4 wells waiting for standard rig to pump, 8 temporarily abandoned, 95 wells drilling, 8 new rigs and 14 derricks.

Amerada Petroleum Corp. set 6-inch casing at 2,548 feet in No. 11 Flenniken, Section 6-16-15. Anderson and others are fishing for bit at 2,460 feet in No. 2 Murphy, Section 15-16-15. Belmont and others have shut down waiting for funds, No. 1 Jones, Section 21-16-15, at 1,430 feet. Broderick & Calvert are drilling at 225 feet in No. 4 Bradford, Section 8-16-15. Carnahan and others are drilling at 1,672 feet in No. 1 Coombs, Section 24-18-16. Clements Oil Co. is trying to pull 3-inch at 2,880 feet in No. 4 Moodey, Section 18-17-14. Crawford & Sebastian lost hole at 2,465 feet; will skid derrick for No. 6 James, Section 8-16-15. Rowe Daniels set 10-inch at 204 feet; drilling at 1,800 feet in No. 7 Tatum, Section 7-16-15. Eason and others are recementing 8-inch casing at 2,642 feet in No. 6 Murphy, Section 15-16-15. Ferguson Drilling Co. is drilling at 1,850 feet in No. 1 Howard, Section 7-16-16. W. H. Gilliland has drill stem stuck at 2,557 feet in No. 2 Hodges, Section 31-16-17. Grimes & Jones are drilling at 2,157 feet in No. 1 J. A. Rowland, Section 5-18-14. Gulf Refining Co. is drilling at 225 feet in No. 5 Primm, Section 1-16-16, and has set 6-inch casing at 2,239 feet in No. 43 Werner, Section 6-16-16.

Hollifield and others lost hole at 2,398 feet; arranging to skid derrick for No. 3-A Giller, Section 10-16-15. Humble Oil & Refining Co. has derrick up for No. 5 Giller, Section 15-16-15. E. M. Jones is drilling at 2,500 feet in No. 3 Cook, Section 16-16-15; drilling at 1,985 feet in No. 2 Murphy, Section 17-16-15, which was formerly completed, swabbing 600 bbls. at 2,089 feet as Barnsdale & Foster's No. 3; sidetracking liner at 2,056 feet in No. 3 Murphy, Section 17-16-15, which was reported abandoned at 2,360 feet; has derrick up for No. 3 Lawton, Section 10-16-15. Kennebrew and others set 4-inch at 2,512 feet in No. 1 Williams, Section 3-16-15.

Other Operations

Lion Oil Refining Co. has derrick up for No. C-4 Bilyew, Section 8-16-15, reported as No. 5 Bilyew, in error; drilling at 2,460 feet in No. 9 Graves, Section 3-16-15; drilling at 2,435 feet in No. A-7 Murphy, Section 7-16-15; temporarily abandoned No. A-10 Murphy, same section, in salt water at 2,422 feet; drilling at 2,095 feet in No. A-12 Murphy, same section.

Liberty Oil Co. is drilling at 1,650 feet in No. 2 Davis, Section 31-16-14. Lion Oil Refining Co. is drilling at 225 feet in No. G-11 Murphy, Section 8-16-15; drilling at 2,310 feet in No. C-5 Murphy, same section.

Little Fay Oil Co. set 10-inch at 284 feet; drilling at 1,800 feet in No. 4 Harrell, Section 17-16-15.

Magnolia Petroleum Co. has derrick up for No. 3 Hatfield, Section 7-16-15; drilling plug at 2,372 feet in No. 8 Hatfield, same section; fishing swab in 5 feet of sand at 2,377 feet in No. 9 Hatfield, same section; rigging up to drill No. 3 N. J. Scott, Section 12-16-17. Marine Oil Co. is rigging up to drill No. B-5 Murphy, Section 15-16-15. Pat Marr set 10-inch at 179 feet in No. 1 Moody, Section 16-17-14. Murdock and others drilled to 2,427 feet, blowing wild 2,000 bbls. salt water and 30,000,000 feet of gas in No. 7 Hays, Section 4-16-15. Murphy Oil & Gas Co. set 10-inch at 307 feet, drilling at 345 feet in No. 7 T. C. Murphy, Section 9-16-15. Natural Gas & Petroleum Co. is drilling at 1,990 feet in No. B-5 Harold, Section 17-16-15; set 5-inch at 2,702 feet, 6-inch stuck to bottom, in No. C-3 Lawton, Section 10-16-15.

Natural Gas & Petroleum Co. set 4-inch at 2,676 feet in No. D-3 Murphy, Section 8-16-15. Ohio Oil Co. tested salt water, is arranging to recement in 3 feet of sand at 2,534 feet in No. 12 Pate, Section 10-16-15. G. H. Pace is drilling in sand at 2,305 feet in No. 1 Barnett, Section 11-16-18. Parris and others have 1,500 feet of oil and 7 feet of sand at 2,558 feet in No. 4 Ferguson, Section 6-16-15. Phillips Petroleum Co. set 4-inch at 2,629 feet, drilling plug with tools in No. 2 Thompson, Section 7-16-15. Penguin Oil Co. is coring at 2,547 feet in No. 6 McDonald, Section 1-16-15. Pure Oil Co. is drilling at 2,435 feet in No. 7 Meriwether, Section 6-16-15. Roxana Petroleum Corp. set 6-inch at 2,378 feet, drilling at 2,383 feet in No. C-5 Flenniken, Section 8-16-15. Simms Oil Co. set 4-inch at 2,447 feet in No. A-1 Murphy, Section 16-16-15. Southern Crude Oil Producing Co. is drilling at 1,815 feet in No. 9 Graves, Section 3-16-15; drilling at 1,787 feet in No. 7 Lyell, same section; set 12-inch at 322 feet in No. 3 Lawton, Section 7-16-15.

Snowden & McSweeney tested 100 feet of oil at 2,264 feet and 2,273 feet and salt water at 2,281 and 2,415 feet in No. 1 McGraw, Section 1-16-17. Standard Oil Co. is arranging to set 6-inch at 2,508 feet in J. H. Alphin, Section 8-16-15; drilling in shale at 2,217 feet in No. 5 Goodwin, Section 36-17-16. Sure Oil Co. set 10-inch at 258 feet, drilling at 1,087 feet in No. 4 Murphy, Section 15-16-15. Sun Oil Co. is washing to bottom in No. 6 Hatfield, Section 6-16-15; drilling at 2,200 feet (corrected depth) in No. 1 McClanahan, Section 1-16-16. The Texas Co. is skidding derrick 20 feet west and has drilled to 325 feet in No. 9 Alphin, Section 3-16-15; set 4-inch at 2,540 feet, tested salt water at 2,530 feet in No. 10 Alphin, same section.

The Texas Co. is also drilling at 1,925 feet in No. 11 Graves, Section 3-16-15. Thurman and others set 12-inch at 247 feet, drilling at 2,026 feet in No. 7 Wilson, Section 6-16-15; rigging up to drill No. 8 Wilson, same section. Wingfield and others are drilling at 2,800 feet in No. 3 Lyons, Section 7-17-14; drilling at 2,853 feet in No. 1 Tuffs, Section 18-17-14.

Ouachita County

Arkansas Drilling Co. is cementing back to 2,030 feet in No. 1 Turnage, Section 34-15-16. Gulf Refining Co. is standing 2,400 feet in salt water, waiting orders at 2,695 feet in No. A-18 Umsted, Section 33-15-15. Humble Oil & Refining Co. set 10-inch at 192 feet, drilling at 1,850 feet in No. B-7 Arnold, Section 26-15-16; has derrick up for No. B-8 Arnold, Section 26-15-15; rigging up to drill No. 9 Flannigan, Section 6-16-15; drilling at 2,076 feet in No. 1 B. Goodwin, Section 22-15-17; drilling at 2,004 feet in No. 3 Hildebrandt, Section 28-15-15; drilling at 250 feet in No. 4 H. Laney, Section 31-15-15. Kouri and others set 6-inch at 2,427 feet, drilling at 2,480 feet in No. 2 Snowhill Church, Section 28-15-15. Magnolia Petroleum Co. is bailing casing at 2,540 feet in No. 5 J. Goodwin, Section 5-16-15; drilling at 1,455 feet in No. 11 J. Goodsin, same section.

Ohio Oil Co. set 10-inch at 132 feet, drilling at 1,287 feet in No. B-7 Lewis, Section 27-15-16, and set 10-inch at 143 feet, drilling at 1,500 feet in No. B-8 Lewis, same section. Phillips Petroleum Co. is fishing for bailer at 2,611 feet in No. 14 Joyce, Section 33-15-15. Pure Oil Co. set 12-inch at 210 feet, drilling at 539 feet in No. 11 Brister, Section 28-15-15. Reynolds and others set 6-inch at 2,264 feet in No. 1 Fee, Section 25-15-11; drilling at 1,585 feet in No. 2 Fee, same section.

Simms Oil Co. has drill stem stuck at 2,628 feet in No. 5 Hildebrandt, Section 28-15-15; set 4-inch, arranging to cement back at 2,698 feet; arranging to shoot casing, tested salt water at 3 feet of sand at 2,704 feet in No. 10 F. A. Laney, Section 31-15-15; tested salt water at 2,581 feet, set 4-inch at 2,539 feet, total depth at 2,581 feet in No. 11 F. A. Laney, Section 31-15-15; drilling at 2,445 feet in No. 7 N. B. Murphy, Section 29-15-15. Superior Oil Co. tested 2,000,000 feet of gas at 2,549 feet in 1 foot of sand, bailing to test at 2,581 feet in 220 feet of broken sand. The Texas Co. is waiting

D&B QualityFirst

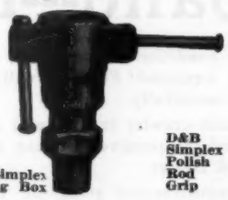
It's the "Quality First" that makes them LAST

D&B Simplex Sucker Rod Elevator.

D&B Simplex Sucker-Rod Elevator: Its simplicity is marked. There are few working parts and each one is of great strength and durability. Elevator body carries the load. Rod cannot be removed when jaws are closed, except by regular operation.

D&B Standard Safety Hook

D&B Standard Safety Hooks are speedy and sure. They lighten the burden and speed up the work. Made for rods and tubing.



D&B Simplex Stuffing Box

D&B Simplex Polish Rod Grip

D&B Simplex Stuffing Boxes are simple, efficient and economical. Lubricating bowl at top prevents packing from burning out between heads, or while oil is coming to the top. There is nothing to get out of order.

D&B Simplex Polish Rod Grip—the *Grip* with the powerful toggle leverage. When it grips, it holds, and it won't let go. Will not damage rod. Instantly applied or released.

Get your name on the list for our new catalog—out soon.

D&B PUMP & SUPPLY CO.,
501 West Avenue 26, Los Angeles, Calif.
Branch Factory: P. O. Box 1033, Dallas, Texas.
Sales Representatives in all Principal Oil Fields.

Cross Head and Crank Brasses for 25 and 35 H. P. Bessemer Oil Country Gas Engines furnished with bolts and shims.

Progressive
BRASS and BRONZE
Products
Highest Quality!

Quality is constantly of paramount consideration with the Progressive Organization. Only the best is good enough. This is partly why it takes fifteen times more floor space for manufacturing purposes now than it did a few years ago.

Big Free Catalog

The "Progressive" catalog should be in your business library. Besides showing the complete "Progressive" line, it contains lots of other valuable information.

BRASS Progressive MFG. CO.
KANSAS CITY MO.
Tulsa Representative, A. N. Porter, 308 So. Olympia St.

In Sand---In Mud!

Or any other condition where wheels are impractical, the Trackson Full-Crawler equipped Fordson will handle a 4-horse load and haul more economically.

This low-priced crawler tractor will cut your operating costs. Repair parts are inexpensive and can be obtained through any authorized Ford Dealer.

An all-steel construction gives the Trackson longer than average life. Special ring oiling bearing adds to its serviceability.

Write for specific information.

THE FULL-CRAWLER CO.
Dept. of Geo. H. Smith Steel Casting Co.
511 Clinton St., Milwaukee, Wis.

Trackson Full-Crawler for Fordsons

The Only Pyrometers Made Which Can Have Automatic Cold Junction Compensation *Including* Temperature Coefficient and Means of Zero Adjustment
(Patented December 28th, 1920)

Write for Catalog No. 14 today.

Address to The Brown Instrument Company, 4536 Wayne Avenue, Philadelphia, Pa., or to one of our District Offices, at New York, Boston, Pittsburgh, Cleveland, Chicago, Indianapolis, Birmingham, Houston, Tulsa, Los Angeles, San Francisco, or Montreal.

Brown Pyrometers
Most used in the world

on standard rig to pump in 1,500 feet of oil and 9 feet of sand at 2,370 feet in No. 10 Berry, Section 33-15-15; drilling in with cable tools at 2,425 feet in No. 16 Berry, same section; set 4-inch at 2,591 feet in No. 1 Wright, Section 3-16-15. Sid Umsted tested salt water at 2,566 feet in No. 3 Fee, Section 4-16-15. Woodley Petroleum Co. is fishing for liner at 2,279 feet in No. 2 Umsted, Section 4-16-15.

Stephens District

Buffalo Oil Co. is drilling at 550 feet in No. 3 Morgan, Section 22-15-19.

Bienville Parish

Hawks and others are drilling at 90 feet in No. 1 Calhoun, Section 15-19-7, 8 miles south of Homer and 5 miles north of Gibbsland.

Bossier Parish

Arkansas Drilling Co. is building steel derrick for No. 1 Murray, Section 14-23-14, in the center of the section. Atlantic Oil Producing Co. set 6-inch at 2,629 feet in No. 1 Bolinger, Section 36-23-11, 3 miles north of Sarepta and 6 miles south of the line. The Texas Co. tested dry at 2,670 feet in No. 7 Henry Rose, Section 31-23-11, 6 miles south of the Arkansas line and 8 miles northeast of Plain Dealing.

Caddo Parish

In the Pine Island district, W. D. Chew is waiting for standard rig in 7 feet of sand at 1,850 feet in No. 1 Murphy, Section 33-21-16; Dixie Oil Co. is arranging to set 8-inch at 2,417 feet in No. B-2 Noel, Section 13-21-15; Fortuna Oil Co. is drilling in chalk rock at 1,460 feet in No. 21 Raines, Section 22-21-15; drilling at 2,170 feet in No. 1 Spell, Section 29-21-15; Lewis Oil Corp. set 6-inch at 1,422 feet, now drilling at 1,604 feet in No. 13 Raines, Section 22-21-15; Ohio Oil Co. is drilling at 2,240 feet in No. 1 J. B. Ardis, Section 1-21-15; Page & Caldwell have shut down in high water at 400 feet in No. 1 Hobbs, Section 29-21-15; The Texas Co. has derrick up for No. 9 Mabry, Section 13-21-15; set 8-inch at 1,432 feet in No. 17 Raines, same section.

In the Hosston district, Austin Oil Co. is waiting for standard rig to pump at 1,057 feet in No. 26 Hoss, Section 24-22-15; rigging up to drill No. 21 Hoss, same section; Dixie Oil Co. is trying to bail 4-inch at 3,580 feet in No. 1 Jolly, Section 27-22-15.

In the Oil City district, Bratcher and others are drilling at 1,895 feet in No. 1 Files, Section 10-20-16; Fortuna Oil Co. is drilling in lime at 3,950 feet in No. 2 Levee Board, Section 8-20-15.

In the old Caddo Field, the Standard Oil Co. pumped 10 bbls. then sanded up in No. 174 Stiles, Section 27-21-16.

The Chisco Oil Co. has made location for No. 1 Starcke, Section 17-23-16.

Four miles west of Cross Lake the Fortuna Oil Co. is drilling in lime at 4,290 feet in No. 1 Mitchell, Section 17-18-16. Ohio Oil Co. set 10-inch at 2,394 feet in No. 18 E. K. Smith, Section 12-21-15.

Caldwell Parish

Potts & Crickett are drilling at 910 feet in No. 1 Gore, Section 33-12-3e, half way between Columbia and Urania.

Claiborne Parish

Clark & Melat are drilling in shale at 2,515 feet in No. 1 Heard, Section 5-21-6, 4 miles northwest of Homer.

Triangle Drilling Co. has derrick up for No. 1 Baker, Section 13-19-6, about 10 miles north of Arcadia.

Catahoula Parish

Ferguson & Kimbrough Oil & Gas Co. is drilling at 1,500 feet in No. 1 Nichols, Section 31-9-6e.

DeSoto Parish

Dixie Oil Co. is drilling in lime at 2,862 feet in No. 1 Jenkins, Section 9-12-11, in the Naborton Field.

Five miles east of Logansport, the Fortuna Oil Co. is drilling at 4,117 feet in No. 1 Alexandria, Section 32-12-15.

Gulf Refining Co. is drilling in lime at 5,325 feet in No. C-18 Willis-Williams, Section 31-13-11, 2 miles south of Bayou Pierre Lake, and has been rigging up to drill No. A-33 Jenkins, Section 4-12-11.

The Texas Co. set 12-inch at 44 feet and is now drilling in shale and boulders at 359 feet in No. A-9 Wemple, Section 9-12-11, another well on the edge of the Naborton Field.

LaSalle Parish

Alexandria Urania Oil Co. set 10-inch at 95 feet, drilling at 950 feet in No. 1 Urania, Section 19-10-2e, and has derrick up for No. 2 Urania, same section.

Dixie Oil Co. is drilling in shale at 2,072 feet in No. 2 La. & A. Oil Co., Section 4-8-2e, 8 miles west of Jena.

Dowling & McMurray cemented 8-inch at 950 feet, now shut down at 1,350 feet in No. 1 Holloway, Section 28-11-2e, 4 miles north of Urania and 2 miles west of Olla.

Gould & Monroe have derrick up for No. 3 Harper, Section 22-10-1e.

Keene & Wolf Oil Co. set 8-inch at 3,200 feet off bottom, total depth at 1,540 feet, in No. 1 Urania, Section 19-10-2e, offsetting discovery well.

Louisiana Oil & Refining Co. is drilling at 1,540 feet in No. 1 Tremont, Section 20-10-2e, 2 miles south of the discovery well, and has derrick up for No. 2 Tremont, Section 29-10-2e.

Cleve Love is coring at 1,500 feet in No. 1 Doty, Section 36-10-1e, half way between Jena and Urania.

Ohio Oil Co. has made location for No. 1 Urania, Section 24-10-1e. Urania Petroleum Co. set 8-inch at 959 feet in No. 10 Urania, Section 19-10-2e, offsetting discovery well and 1 mile south of Urania.

J. P. White is drilling at 205 feet in No. 1 Louisiana Central Lumber Co., Section 27-10-2e, 6 miles south of Olla and 3 miles east of discovery well.

Morehouse Parish

R. C. Boisseau and others set 8-inch at 1,780 feet, drilling at 2,090 feet in No. 1 Sullivan, Section 11-21-7e, 10 miles east and a little north of Bastrop.

United Carbon Co. is drilling at 910 feet in No. 1 Gray, Section 16-20-5.

Ouachita Parish

United Carbon Co. is drilling at 50 feet in No. 1 Archie, Section 24-20-4e.

Rapides Parish

Hincey & Macke have shut down at 1,035 feet in No. 1 Barrow, Section 29-5-2e.

Sabine Parish

L. M. Emlet struck top chalk rock at 2,662 feet, now coring in sand and shale at 3,207 feet in No. 6 Bowman-Hicks Lumber Co., Section 8-7-12, 7 miles west and a little north of Many.

Toro Petroleum Co. is drilling at 1,500 feet in No. 1 Pickering Lumber Co., Section 24-5-12, 12 miles south of Many.

Arkansas Wildcats

Bradley County—Gulf Refining Co. is drilling at 3,212 feet in No. 1 Benson, Section 25-15-9, half way between Warren and Hamburg.

Calhoun County—Magnolia Petroleum Co. is waiting for drill stem at 2,864 feet in No. 1 Calion Lumber Co., Section 29-15-14, 6 miles north of Smackover production.

Clark County—Virgil Heath set 6-inch at 830 feet, claim 5 feet of sand at 834 feet in No. 1 Arnold, Section 12-9-20, 4 miles northeast of Gordon.

Cleveland County—Simms Oil Co. is drilling at 2,361 feet in No. 1 Mosley, Section 19-10-11, 8 miles east of Fordyce.

Columbia County—Hude & Aarnes are drilling in lime at 2,545 feet in No. 2 Brown, Section 13-15-20, in the Stephens Field. Magnolia Petroleum Co. is drilling at 951 feet in No. 5 Rinhart, Section 36-15-20. Natural Gas & Petroleum Co. hit chalk rock at 2,485 feet, drilling in rock at 2,490 feet in No. 1 Hays, Section 30-19-18, 15 miles north of the Springhill district.

Hempstead County—Burton and others are fishing for bit and collar at 600 feet in No 1 Garland, Section 23-10-25. Tarver and others have completed their contract and are now waiting orders at 2,550 feet in No. 1 Swafford, Section 14-11-25, 1 mile east of Washington.

LaFayette County—Arkansas Fuel Oil Co. tested salt water at 2,783 feet in 5 feet of sand, show of oil, drilled to 3,084 feet, had 6-inch cemented at 2,778 feet, plugged back to 2,690 feet and whipstocked through 6-inch, cemented 4-inch on top of cap rock at 2,780 feet, drilled through cap rock at 2,784 feet, 6-inch blew out at 2,200 feet, could not lower, account salt water blew out 25 or 30

(Continued on Page 118)

Decline in Completions and Drilling

November Field Operations East of California Result in Increase in Initial Production But Show a Conservative Trend in New Work

SUMMARY OF ALL FIELDS

Field—	Comp.	Prod.	Dry	Gas
Eastern	384	1,471	62	84
Lima	45	445	7	6
Central Ohio	52	426	9	36
Indiana	14	165	2	1
Illinois	36	2,377	6	1
Kentucky	121	1,254	27	16
Tennessee	5	300	3	0
Kansas	192	14,114	53	11
Oklahoma	345	81,874	134	33
North Central Texas	315	22,810	126	11
East Central Texas	30	112	26	1
Southwest Texas	40	4,252	13	7
Gulf Coast	90	38,180	30	0
North Louisiana	20	1,650	7	4
Arkansas	74	6,940	26	15
Wyoming	58	6,208	7	3
Montana	48	8,742	18	2
Colorado	5	1,050	1	1
Utah	0	0	0	0
New Mexico	25	2,862	7	0
Total Nov.	1,899	195,232	564	232
Total Oct.	2,129	188,618	573	205
Difference	230	6,614	9	27

Rigs and Wells Drilling

Field—	Rigs	Drg.	Ttl.
Eastern	138	469	607
Lima	4	55	59
Central Ohio	21	66	87
Indiana	1	31	32
Illinois	2	53	55
Kentucky	10	249	259
Tennessee	3	15	18
Mississippi	3	11	14
Alabama	0	6	6
Georgia	1	4	5
Kansas	92	339	432
Oklahoma	222	1,031	1,253
North Central Texas	59	407	466
East Central Texas	2	28	30
Southwest Texas	47	91	138
Gulf Coast	44	164	208
North Louisiana	30	44	74
Arkansas	43	127	170
Wyoming	38	275	313
Montana	32	152	174
Colorado	17	94	111
Utah	2	32	34
New Mexico	5	135	140
Total Nov.	807	3,878	4,685
Total Oct.	815	4,052	4,867
Difference	8	174	182

The most noticeable fact regarding the report on field operations east of California in November is that while the number of completed wells was 230 fewer than in October the number of drilling operations, including rigs up, was 182 fewer at the close of November than at the close of October. This indicates a net falling off of 412 operations in the course of 30 days, which means that many a set of tools was staked in different parts of the country awaiting a more favorable general market condition than now prevails.

At the close of November there were 70 fewer rigs up than at the close of September and 484 fewer wells drilling, a total falling off of 554 in actual field operations.

OKLAHOMA FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Osage	52	2,945	13	6
Tulsa	29	231	17	3
Okmulgee	37	3,870	15	3
Seminole	18	165	4	0
Okfuskee	12	592	8	1
Hughes	14	227	5	4
Muskogee and Wagoner	8	35	5	1
Creek	21	1,587	10	4
Pawnee	12	379	4	0
Kay	17	5,971	6	3
Payne and Lincoln	20	7,800	2	0
Noble	10	66	9	0
Garfield	16	54,336	1	0
Stephens and Cotton	19	791	3	2
Carter	18	672	2	1
Miscellaneous	32	2,207	19	5
Total Nov.	345	81,874	134	33
Total Oct.	433	69,664	142	46
Difference	88	12,210	8	13

Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	Ttl.
Osage	15	57	72
Tulsa	2	25	27
Okmulgee	29	83	112
Seminole	6	47	53
Okfuskee	10	63	73
Hughes	19	48	67
Muskogee and Wagoner	3	17	20
Creek	35	84	119
Pawnee	8	45	53
Kay	16	128	144
Payne	9	37	46
Lincoln	11	65	76
Garfield	11	76	87
Noble	2	25	27
Grady	7	20	27
Stephens and Cotton	8	44	52
Pontotoc and Garvin	2	22	24
Carter	10	39	49
Jefferson	1	26	27
Miscellaneous	18	80	98
Total Nov.	222	1,031	1,253
Total Oct.	213	1,023	1,236
Difference	9	8	17

KANSAS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Anderson	38	2,510	4	..
Butler	21	860	8	2
Chautauqua and Elk	22	641	6	2
Cowley	18	2,699	6	1
Greenwood	47	4,105	15	..
Russell	13	2,209	3	..
Miscellaneous	33	1,090	11	6
Total November	192	14,114	53	11
Total October	182	16,084	56	8
Difference	10	1,970	3	3

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	T't'l
Butler	19	40	59
Chautauqua and Elk	3	28	31
Chase	5	7	12
Cowley	11	50	61
Greenwood	35	56	91
Montgomery	..	20	20
Russell	3	16	19
Sedgwick	..	8	8
Sumner	1	12	13
Woodson	2	8	10
Miscellaneous	14	94	108
Total November	93	339	432
Total October	68	370	438
Difference	25	31	6

NORTH CENTRAL TEXAS

Summary of Wells Completed

District—	Comp.	Prod.	Dry	Gas
Wichita	43	660	18	0
Wilbarger	29	6,050	7	0
Archer	102	5,610	39	0
Young	31	1,365	13	0
Stephens	12	515	6	3
Eastland	14	550	3	2
Brown	7	610	2	0
Reagan	8	4,555	1	0
Wildcats	69	2,895	32	6
Total Nov.	315	22,810	126	11
Total Oct.	399	32,265	146	11
Difference	84	9,455	20	0

Summary of New Work

District—	Rigs	Drg.	Ttl.
Wichita	6	32	38
Wilbarger	10	73	83
Archer	7	56	63
Young	1	36	37
Stephens	4	35	39
Eastland	2	12	14
Brown	4	14	18
Reagan	3	14	17
Wildcats	22	135	157
Total Nov.	59	407	466
Total Oct.	90	376	466
Difference	31	31	0

EAST CENTRAL TEXAS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Navarro	6	82	3	1	2	9	11
Limestone-Freestone	4	30	3	0	0	5	5
Miscellaneous	*20	...	20	0	0	14	14
Total Nov.	30	112	26	1	2	28	30
Total Oct.	16	354	9	0	9	50	59
Difference	14	242	17	1	7	22	29

*Miscellaneous completions, all dry holes, were old wells that have been shut down most of them for many months, but not before definitely known to have been abandoned.

GULF COAST AND SOUTHWEST

Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Batson	6	11,025*	0	0	6	6	12
Blue Ridge	2	0	2	0	0	2	2
Big Creek	1	200	0	0	0	2	2
Damon Mound	0	0	0	0	2	0	2
Goose Creek	7	365	1	0	1	14	15
Humble	2	300	0	0	1	6	7
Hull	14	6,810	0	0	5	9	14
High Island	6	825	3	0	0	6	6
Jennings (La.)	3	1,300	1	0	0	4	4
Markham	0	0	0	0	1	0	1
Lockport (La.)	2	0	2	0	2	6	8
Orange	10	14,325*	3	0	3	19	22
Pierce Jct.	0	0	0	0	1	2	3
Spindletop	7	1,865	0	0	2	5	7
Saratoga	1	5	0	0	0	1	1
Sour Lake	5	410	1	0	1	4	5
South Liberty	2	50	1	0	0	2	2
Vinton (La.)	9	700	3	0	1	5	6
W. Columbia	1	0	1	0	2	3	5
Miscellaneous	12	0	12	0	16	68	84
Total Nov.	90	38,180	30	0	44	164	208
Total Oct.	83	12,535	37	1	33	137	170
Difference	7	25,645	7	1	11	27	38

Southwest Fields

Luling	0	0	0	0	1	5	6
Laredo	7	40	3	3	9	11	20
Somerset	3	24	0	0	1	3	4
Rockdale-Minerva	4	43	0	1	4	6	10
Jim Hogg County	12	1,990	1	2	2	8	10
Lockhart	16	2,150	3	0	5	12	17
Miscellaneous	8	5	6	1	25	46	71
Total Nov.	50	4,252	13	7	47	91	138
Total Oct.	55	8,389	5	5	37	105	142
Difference	5	4,137	8	2	10	14	4

Grand total:

Gulf Coast	90	38,180	30	0	44	164	208
Southwest	50	4,252	13	7	47	91	138
Total Nov.	140	42,432	43	7	91	255	346
Total Oct.	138	20,924	35	8	69	210	279
Difference	20	21,508	8	1	22	45	67

*Wells sanded.

NORTH LOUISIANA AND ARKANSAS

Summary of Field Operations

Dist.—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Union Co., Ark.	38	5,115	8	9	24	74	98
Ouachita Co., Ark.	27	1,815	10	6	10	28	38
Nevada Co., Ark.	0	0	0	0	3	2	5
Stephens Co., Ark.	1	0	1	0	0	4	4
Bellevue, La.	2	17	0	0	1	0	1
Caddo, La.	5	1,528	0	1	15	13	28
La. wildcats	13	105	7	3	14	31	45
Ark. wildcats	8	10	7	0	6	19	25
Total Nov.	94	8,590	33	19	73	171	244
Total Oct.	141	19,452	46	16	82	292	375
Difference	47	9,862	13	3	10	121	131

WYOMING

Summary of Field Operations

Dist.—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Big Muddy	0	0	0	0	0	3	3
Salt Creek	40	4,626	1	0	18	57	75
Lance Creek	1	300	0	0	0	2	2
Big Horn Basin	3	512	1	0	4	58	62
Lost Soldier	8	535	1	2	2	30	32
Rock River	2	235	0	0	0	10	10
Fremont Co.	0	0	0	0	1	33	34
Osage	0	0	0	0	5	11	16
Natrona Co.	0	0	0	0	0	17	17
Lincoln-Uintah Co.	0	0	0	0	4	13	17
Baxter Basin	0	0	0	0	2	5	7
Miscellaneous	4	0	4	0	2	36	38
Total Nov.	58	6,208	7	3	38	276	313
Total Oct.	60	6,192	7	0	42	314	356
Difference	2	16	0	3	4	39	43

MONTANA

Summary of Field Operations

Dist.—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Sunburst	43	8,732	14	2	15	60	75
Cat Creek and Miscellaneous	5	10	4	0	7	92	99
Total Nov.	48	8,742	18	2	22	152	174
Total Oct.	46	10,084	12	4	22	172	194
Difference	2	1,342	6	2	0	20	20

UTAH

Summary of Field Operations

	Rigs	Drg.	Ttl.
Total Nov.	2	32	34
Total Oct.	2	29	31
Difference	0	3	3

COLORADO

Summary of Field Operations

Dist.—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Total Nov.	5	1,050	1	1	17	94	111
Total Oct.	4	1,230	1	0	21	101	122
Difference	1	180	0	1	4	7	11

NEW MEXICO

Summary of Field Operations

Dist.—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Total Nov.	25	2,862	7	0	5	135	140
Total Oct.	29	5,039	3	0	6	116	122
Difference	4	2,177	4	0	1	19	18

EASTERN FIELDS

Summary of Wells Completed

Field—	Comp.	Prod.	Dry	Gas
Allegany	19	40	0	1
Bradford	98	315	0	1
Middle Field	12	18	2	1
Venango-Clarion	35	39	5	4
Butler-Armstrong	13	18	4	3
Southwest Pennsylvania	14	21	4	6
West Virginia	106	281	27	50
Southeast Ohio	87	729	20	18
Total Nov.	384	1,471	62	84
Total Oct.	416	2,037	49	80
Difference	32	566	13	4

Summary of Field Operations

Field—	Rigs	Drg.	Ttl.
Allegany	9	25	34
Bradford	20	71	91
Middle Field	0	7	7
Venango-Clarion	2	15	17
Butler-Armstrong	4	15	19
Southwest Pennsylvania	6	46	52
West Virginia	56	182	236
Southeast Ohio	41	108	149
Total Nov. 30	138	469	607
Total Oct. 31	135	501	636
Difference	3	32	29

LIMA FIELD

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wood	6	22	2	0	0	7	7
Hancock	6	85	1	1	1	2	10
Allen	2	25	0	0	0	2	2
Auglaize	1	6	1	0	0	3	3
Sandusky	4	18	0	0	0	3	3
Mercer	*6	33	1	2	1	7	8
Van Wert	0	0	0	0	0	3	3
Seneca	0	0	0	0	0	1	1
Lucas	0	0	0	0	0	3	3
Ottawa	3	35	0	0	0	3	3
Darke	2	6	0	1	0	0	0
Shelby	7	163	2	1	0	6	6
Hardin	5	32	0	1	0	3	3
Paulding	2	6	0	2	1	3	4
Defiance	0	0	0	0	0	1	1
Michigan	1	20	0	0	0	3	3
Total Nov.	45	445	7	6	4	55	59
Total Oct.	49	561	7	1	4	55	59
Difference	4	116	0	5	0	0	0

INDIANA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
Wells	0	0	0	0	1	1
Jay	6	60	1	0	5	5
Adams	5	62	1	0	3	3
Delaware	0	0	0	0	2	2
Randolph	0	0	0	1	0	1
Gibson	0	0	0	0	3	3
Pike	1	15	0	0	4	4
Sullivan	1	3	0	0	3	3
Allen	0	0	0	0	2	2
Daviess	1	25	0	0	4	4
Hendricks	0	0	0	0	1	1
Jackson	0	0	0	0	1	1
Shelby	0	0	0	0	1	1
Spencer	0	0	0	0	1	1
Lagrange	0	0	0	0	1	1
Total Nov.	14	165	3	1	31	32
Total Oct.	8	166	2	3	23	26
Difference	6	1	0	2	8	6

ILLINOIS FIELD

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Clark	3	2	2	0	0	5	5
Cumberland	1	7	0	0	0	1	1
Crawford	3	6	1	0	0	3	3
Lawrence	1	12	0	0	0	4	4
Wabash	18	2,350	3	1	0	26	26
Marion	0	0	0	0	0	2	2
Jackson	0	0	0	0	0	2	2
Morgan	0	0	0	0	0	3	3
Douglass	0	0	0	0	0	1	1
Union	0	0	0	0	0	1	1
Fayette	0	0	0	0	1	1	2
Edwards	0	0	0	0	1	0	1
Jasper	0	0	0	0	0	2	2
Coles	0	0	0	0	0	2	2
Total Nov.	26	2,377	6	1	2	53	55
Total Oct.	25	2,635	5	1	2	53	55
Difference	1	258	1	0	0	0	0

CENTRAL OHIO

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Fairfield	0	0	0	0	1	1	2
Knox	4	0	0	4	3	4	7
Ashland	12	0	4	8	0	9	9
Medina	4	0	2	2	0	5	5
Lorain	6	0	1	5	3	10	13
Wayne	2	5	0	1	1	10	11
Holmes	11	263	1	6	5	14	19
Jackson	0	0	0	0	1	1	2
Hocking	0	0	0	0	0	1	1
Athens	7	0	1	6	0	6	6
Coshocton	3	168	0	1	4	2	6
Cuyahoga	1	0	0	1	0	0	0
Guernsey	2	0	0	2	3	0	3
Tuscarawas	0	0	0	0	0	2	2
Total Nov.	52	426	9	36	21	66	87
Total Oct.	42	296	7	28	30	65	95
Difference	10	130	2	8	9	1	8

KENTUCKY-TENNESSEE

Summary of Field Operations

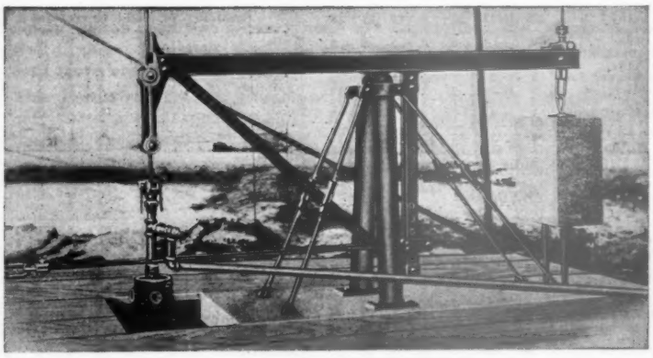
County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Warren	12	77	4	0	0	29	29
Allen	9	50	2	0	0	16	16
Barren	33	254	5	0	0	43	43
Owensboro district	13	130	4	0	0	18	18
Cumberland-Monroe	5	505	3	0	1	13	14
Adair	0	0	0	0	0	1	1
Russell	0	0	0	0	0	3	3
Hopkins	0	0	0	0	0	3	3
Simpson	3	28	1	0	0	3	3
Meade	0	0	0	0	0	1	1
Wayne	5	12	3	0	0	15	15
Lee-Owsley	3	30	0	1	0	14	14
Lawrence-Johnson	7	77	0	0	6	17	23
Johnson-Magoffin	13	88	1	2	2	27	29
Floyd	16	0	4	12	0	18	18
Morgan	0	0	0	0	0	6	6
Elliott	0	0	0	0	0	1	1
Greenup	0	0	0	0	0	1	1
Martin	0	0	0	0	0	2	2
Powell	1	3	0	0	0	1	1
Estill	0	0	0	0	0	9	9
Wolfe	1	0	0	1	0	2	2
Jackson	0	0	0	0	0	1	1
Boyd	0	0	0	0	0	1	1
Breathitt	0	0	0	0	0	1	1
McCreary	0	0	0	0	0	2	2
Menifee	0	0	0	0	0	2	2
Kentucky	121	1,254	27	16	10	249	259
Tennessee	5	300	3	0	3	15	18
Mississippi	0	0	0	0	3	11	14
Alabama	0	0	0	0	0	6	6
Georgia	0	0	0	0	1	4	5
Total Nov.	126	1,554	30	16	17	285	302
Total Oct.	141	1,625	39	4	18	271	286
Difference	15	71	9	13	3	14	16

Another One!

Another One!

Another One!

They must be good, when the large companies are installing them by the carload.



Durnell Counterbalanced Pumping Beam makes the counterweight help do the work.

Save Patience

Save Equipment

Save Power

Also ask about our

Roller Boxes

Knockoff Blocks

Shrouded C C Clamps

Lap Clamps

Knockoff Clamps

and other specialties.

They are as good as the Pumping Beams.

Union Machine Co.

Bartlesville, Okla.

PHONE 711

NORTH LA.-ARKANSAS

(Continued from Page 116)

bbls. of oil, now standing 100 feet in oil on top of water, small show of gas, oil tested 25 gravity; No. 1 Allen, Section 18-19-24, 2 miles east of Bradley.

Humble Oil & Refining Co. is fishing for drill stem at 2,428 feet in No. 1 Reed Bodcau, Section 16-15-22, 15 miles west of the Stephens Field. Kensaw Petroleum Co. is trying to pull short string of 4-inch and will cement at 2,840 feet in No. 2 Red River Land Co., Section 3-20-24, 20 miles south of Lewisville and just across the Louisiana line.

Nevada County—Brewer and others are drilling at 1,560 feet in No. 1 Lister-Holton, Section 22-14-20, 3 miles north of Stephens Field. Greason and others are coring at 1,190 feet in No. 1 Ellis, Section 2-14-21, 18 miles north of Magnolia. Magnolia Petroleum Co. is drilling in gummy shale at 3,450 feet in No. 1 B. F. Johnson, Section 3-15-21, 13 miles north of Magnolia and 6 miles west of the Stephens Field.

Cotton Valley District—Fortuna Oil Co. is drilling in sand rock at 3,255 feet in No. 1 Bible, Section 8-20-10; retesting in 3 feet of sand at 2,515 feet in No. 2 I. Cox, Section 23-21-10. J. F. Giles, trustee, is recementing 4-inch at 3,088 feet in No. 1 Weghost, Section 20-23-11. Humble Oil & Refining Co. is drilling at 2,756 feet in No. 1 R. R. Cox, Section 22-21-10. R. U. Morten tested 13 feet of hard sand at 2,536 feet in No. 1 Josey-Massey, Section 27-21-10. Ohio Oil Co. is rigging up to drill No. 1 W. Cox, Section 23-21-10; set 10-inch at 303 feet, drilling at 750 feet in No. 19 Gray, Section 26-21-10; set 6-inch at 2,535 feet in No. 20 Gray, same section; drilling in chalk rock at 2,775 feet in No. 1 A. J. Hodges, Section 23-21-10; waiting on standard rig in 1,000 feet of oil, 4 feet of sand at 2,554 feet in No. 5 Sidney, Section 16-21-10. Palmer Corp. had well to flow in at 4,390 feet for No. 1 Davis, Section 23-21-10, gas increased gauge 5,900,000 feet, killed; drilled to 2,386 feet; arranging to bail.

Victor Wenzel is drilling in rock at 615 feet in No. 1 Lunsford, Section 10-19-9. Woodley Petroleum Co. is drilling at 1,750 feet in No. B-3 Gray, Section 27-21-10.

SOUTHWEST TEXAS

(Contniued from Page 42)

Magnolia Petroleum Co.'s No. 1 Day in Guadalupe in the southeastern part of the county is close to the Edwards.

Hidalgo County

United Production Co.'s No. 1 Oblate Fathers at La Lomita, near Mission in Hidalgo County, spudded in early last week and has been drilling for a week.

Milam County

Anchor Oil Co. has completed its Nos. 9 and 10 in the Rockdale shallow field in Milam County, one of them making a light producer and the other up to the average of the field. Roundtree, White & Simpson completed their No. 12 Bluebonnet good for 10 bbls a day. Rockdale Development Co. has completed its No. 2 Gaither which is estimated at 30 bbls. a day and is one of the best wells in the field. Roy Long's No. 11 Lewis has been completed as a good average well for the field.

Williamson County

Fritz Fuchs has started drilling No. 1 J. C. Abbott, 1 mile from Lawrence Crossing in the southeastern part of Williamson County, and 750 feet northeast of the No. 1 Simmons, drilled by Mr. Fuchs about 10 years ago which had some showings of oil. Fuchs drilled the discovery well of the Thrall Field.

Live Oak County

Plateau Oil Co.'s No. 3 Freeman in the southeastern part of Live Oak County is nearly down to the 2,300-foot gas sand and is expecting to bring the well in within a few days.

GULF COAST

(Continued from Page 44)

rigging up No. 218 Gladys and the Flynn and others is starting No. 1 Gladys.

The Gulf Production Co.'s No. 5 Antonio, on the south side of the South Liberty Pool, is drilling around 980 feet. The East Texas Oil Co.'s No. 1 LeCour is shut down at 920 feet.

At High Island, the Gulf Production Co.'s No. 4 Smith is blowing gas and salt water at 3,150 feet. The Sun Oil Co.'s No. 1 Smith is drilling around 655 feet. Its No. 6-C Cade is at 800 feet and No. 8 Cade is below 3,510 feet. The Transbay Oil Co.'s No. 12 Great Western is at 344 feet.

At Big Creek, the Gulf Production Co.'s No. 18 Davis is fishing at 3,050 feet and No. 26 Davis is drilling at 3,300 feet.

At West Columbia, the Humble Oil & Refining Co.'s No. 1-B Wilson is drilling around 3,700 feet. No. 1 M. & W. is drilling below 3,865 feet. The Hyde Production Co.'s No. 1 Lee is shut down at 2,575 feet. The Gulf Production Co.'s No. 3 Underwood is rigging to work over. The Texas Co. has a derrick up for No. 22 Arnold.

The Houston-Gulf Gas Co. has a derrick up for No. 2 Myers in the Markham Pool. Hamm & Co. have a derrick for No. 3 Beyan on the southwest side of the Damon Mound Dome.

Drilling Operations

At Goose Creek, the Humble Oil & Refining Co.'s No. 64 Simms-Smith is drilling around 3,920 feet; No. 65 around 2,542 feet; No. 29 Gaillard Peninsula around 2,000 feet; No. 38 around 2,200 feet; No. 4 Harrell around 4,775 feet. The Gulf Coast Oil Corp.'s No. 5 Gaillard is drilling around 2,850 feet. The Powell Oil Co.'s No. 6 Bryan is bailing at 4,410 feet. The Southern Exploration Co.'s No. 7 Freeman is drilling around 1,550 feet. The Sun Oil Co.'s No. 14 B. Smith is drilling around 2,450 feet. The Gulf Production Co.'s No. 30 Beaumont Petroleum is drilling around 2,573 feet; No. 32 is drilling at 4,460 feet; No. 11 Chapman Bryan is rigging up; No. 19 Gaillard Fee is drilling around 2,500 feet; No. 8 H. Gaillard is drilling around 2,650 feet.

The Republic Production Co.'s No. 20 Dolbear at Hull is drilling around 2,842 feet; No. 53 is drilling around 2,905 feet; No. 117 is drilling around 3,942 feet. The Humble Oil & Refining Co.'s No. 19 is rigging up. The Mecom Oil Co.'s No. 3 Taylor is setting 2½-inch screen; No. 8 is working over. The Yount-Lee Oil Co.'s No. 12 Merchant is rigging up to work over. The Higgins Oil & Fuel Co.'s No. 5 Taylor is drilling around 3,625 feet. The Empire Gas and Fuel Co.'s No. 17 Barngrover is drilling around 2,095 feet. The Houston Production Co.'s No. 8 Barngrover is cleaning out; No. 6 Abel is drilling at 1,922 feet. The Gulf Production Co.'s No. 60 is drilling around 820 feet; No. 61 Phoenix and No. 62 are rigging up; No. 21 Morris-Phillips is also rigging up.

In the Orange Pool the Brownie-Babbittee Oil Co.'s No. 3 Brown is drilling around 4,950 feet. The Rycade Oil Corp.'s No. 13 State "B" is drilling around 3,040 feet; No. 14 is drilling at 3,010 feet; No. 4 State "E" is rigging up to work over. The Humble Oil & Refining Co.'s No. 29 Chesson is drilling around 3,770 feet; No. 19 Chesson "A" is bailing at 4,750 feet; No. 1 Barber is drilling around 4,400 feet. The Kishi Development Co.'s No. 6 McGuire is drilling around 4,580 feet; the Orange Petroleum Co.'s No. 7 Winifree is drilling around 3,600 feet; No. 12 Chesson is drilling around 4,600 feet. The Continental Oil Co.'s No. 1 Chesson is rigging up to deepen; No. 7 is drilling around 3,040 feet; No. 16 is bailing at 4,600 feet. The Edgerly Petroleum Co.'s No. 1 Carbello "B" is milling at 3,200 feet. The Sun Oil Co.'s No. 1 Johnson is bailing at 4,725 feet; No. 6 Gunstream is drilling at 4,676 feet. The Tillery Oil Co.'s No. 2 State is clearing up. The Sinclair Oil & Gas Co.'s No. 1 Turner is drilling around 4,000 feet. The Gulf Production Co.'s No. 18 Lee Hager Fee is drilling around 4,320 feet; No. 19 is drilling at 4,360 feet; No. 1 Chesson "A" is milling to deepen.

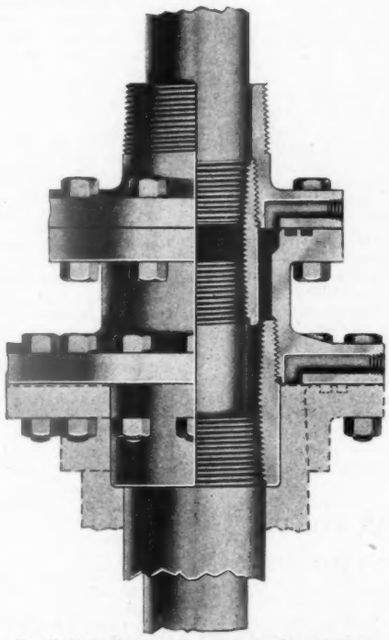
Texas Coastal Wildcats

Around the newer domes the status of drilling wells is as follows: Fannette, in Jefferson County, Gulf Produc-

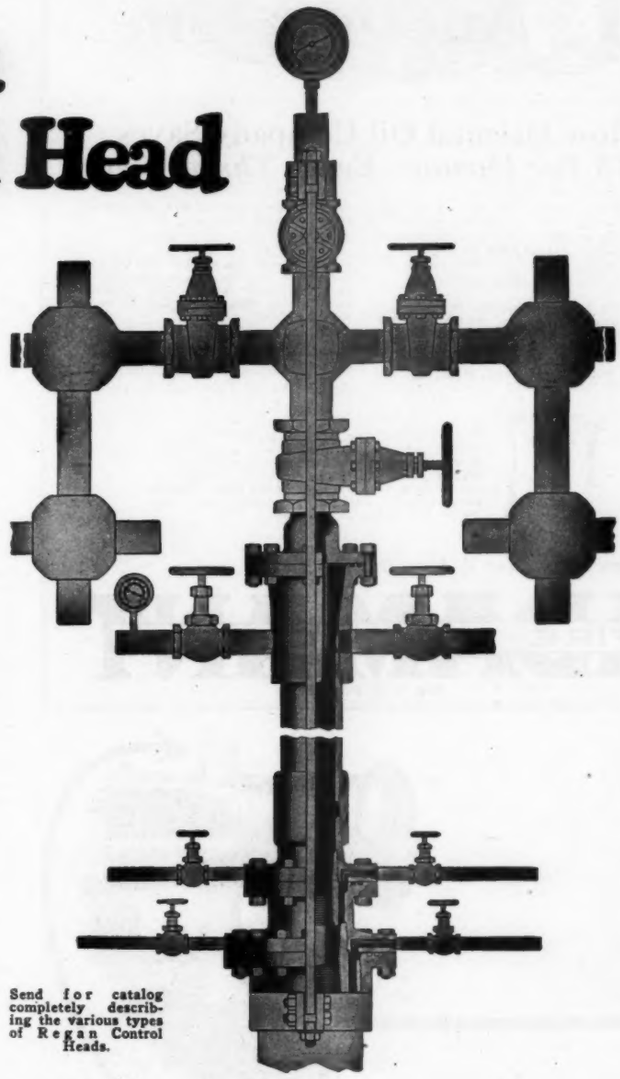
Designers and Manufacturers of Quality Oil Well Equipment

Regan Casing Control Head

With this Control Head blowouts are controlled, gas pressure can be successfully handled at all times and the various sizes of casing are securely tied by the use of top, bottom and spool flanges. The Santa Fe type illustrated here is provided with a special coupling, the upper end of which is threaded on the outside to permit same to be screwed into the lower end of the spool flange or top flange.



Detail view of Santa Fe type, showing arrangement of flanges. Note the compactness. Least cellar space required.



Send for catalog completely describing the various types of Regan Control Heads.

Regan

Forge & Engineering Co.

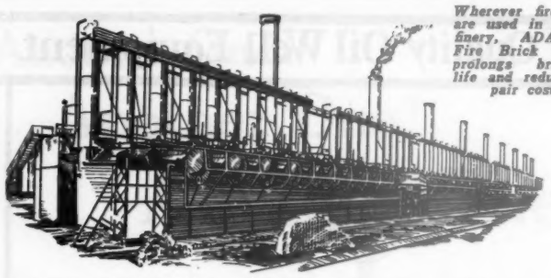
San Pedro California

J. A. Becker, Mid-Continent Manager, Tulsa, Okla.

Quality - Wrought on the Forge of Experience

Wm. Braat, New York Manager, Woolworth Bldg.

Regan Sales Co., California Distributors



Wherever fire brick are used in the refinery, ADAMANT Fire Brick Cement prolongs brickwork life and reduces repair costs.

How Oriental Oil Company Saves *$975 Per Furnace Every Three Years*

BY doubling furnace lining life and eliminating one rebuilding every three years at Oriental Oil Company, Dallas, Texas, ADAMANT Fire Brick Cement effects a saving of $975.00 per boiler furnace every three years.

This figure does not include the saving in shut-down time, which formerly was "a big loss," as Oriental Oil Company writes.

Suppose you could make a similar saving per furnace, still or converter, every three years! Quite an appreciable economy, isn't it?

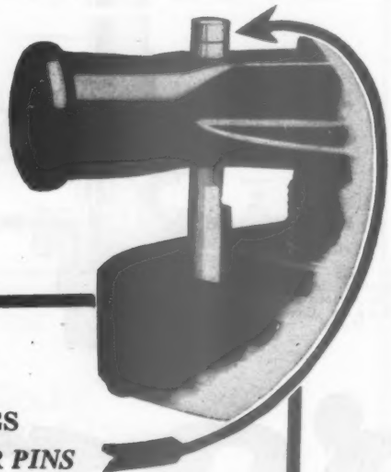
A test in your boiler furnaces, converters, stills or other fire brick construction will show what ADAMANT can do to prolong lining life and reduce brickwork repair costs. Why not arrange for this test? Get in touch with us today.

Botfield Refractories Co.
783 S. Swanson St., Philadelphia, Pa.
New York: 5th Floor, 110 W. 34th St.

"What Users Say of ADAMANT" contains interesting data on brickwork service, and many suggestions for building long-lived brickwork. We'll gladly send a copy to every man who is concerned with furnace maintenance. Tell us how many copies you wish and where to send them.

Whenever You Use A Fire Brick, Use

ADAMANT
FIRE BRICK CEMENT
Reg. U. S. Pat. Off.



ADJUSTABLE
FOR ALL FITTINGS
IT'S IN THE TAPER PINS

"TOLEDO" No. 1 and No. 1-A tools for threading 1 to 2-inch pipe are now fitted with these special long taper pins that permit the operator to cut over or undersize threads as well as standard threads. Only in genuine "TOLEDO" trade-marked tools can you secure this desirable feature, which permits you to instantly adjust the tool to cut any depth thread desired.

There is no 1 to 2-inch threading tool made today that can compare with a genuine "TOLEDO" No. 1-A tool. **$12.00 NET**

Look for the trade-mark, insist on it and accept no substitute.

West of Rockies $12.75

Buy by Comparison and You'll Buy a
"TOLEDO"

THE TOLEDO PIPE THREADING MACHINE CO.
TOLEDO, OHIO

tion Co.'s No. 4 Thomas, drilling around 3,910 feet. Hawkins Dome in Matagorda County, Gulf Production Co.'s No. 2 Craig, drilling at 3,965 feet.

Nash Dome, Fort Bend County, Rycade Petroleum Corp.'s No. 4 Wisdom, started drilling. No. 5 Nash around 3,700 feet. No. 5 Wisdom at 1,200 feet. Moore Dome, northwest of Rosenburg, Gulf Production Co.'s No. 5 Moore, drilling around 3,600 feet. Long Point, between Big Creek and Damon Mound, Gulf Production Co.'s No. 6 Davis drilling around 1,700 feet. Lockwood, Marland Oil Co. of Texas' No. 5 Lockwood drilling below 4,375 feet.

Boling Dome, Wharton County, The Texas Co.'s No. 3 Taylor drilling at 2,960 feet. The Humphrey Corp. and John Rich jointly are drilling a shallow test 12 miles west of the Boling Dome. They have 4,500 acres blocked up on both sides of the Colorado River and are now using both the seismograph and torsional methods.

Tests drilling around old domes are: At Hockley, Harris County, The Texas Co.'s No. 4 Warren at 4,107 feet; No. 5 Warren at 3,610 feet. Big Hill, Jefferson County, the Houston Oil Co.'s No. 4 Sun-Davis drilling around 2,810 feet. No. 1 Pipkin-Davis shut down. No. 1 Sun-Dyson drilling at 2,435 feet.

Inland from the coast, in Washington County, Spangler and others' No. 1, near Burton, is below 500 feet. O. B. Colquit has a derrick for No. 1 Thoening. In Austin County, the La Marque Oil Co. is drilling No. 5 Hess; C. A. DeWare, No. 3 Schilz; and Knolle & Malloy, No. 2 Knolle. Spangler and others' No. 1 Newman is rigging in Fayette County. The Gulf Production Co. has started drilling No. 1 D. M. O'Connor ranch in Victoria County with a derrick up for No. 1 Thomas O'Connor.

In Harris County, the Retrieve Oil Co.'s No. 1 Westheimer on the Houston-Humble highway got salt water and is drilling deeper from 3,330 feet. The Rycade Petroleum Corp.'s No. 1 Weems, Hunting Bayou, is drilling around 3,375 feet.

The Republic Production Co.'s No. 1 Carroll in Orange County, is drilling around 2,860 feet in salt water. It has been standing idle for some time.

C. T. Rucker's No. 1 Fisher in Chambers County, 17 miles east of the Goose Creek Pool, is deepening below 2,600 feet.

MEXICAN FIELDS

(Continued from Page 40)

feet, is coming right up to expectations, if, indeed, it is not bettering them. As soon as an 8-inch line could be laid from the well to the International's Raventadero station, say 10 kilometers away, and across the Panuco River, the well flowed over 3,000 bbls. under its own pressure. Now, with field storage in commission and a field pump station up, the well, with its valve only opened a little, is doing, say, 24,000 bbls. It was this well, in the middle of International's lease in Las Piedras, that turned the attention of operators to this part of the old Panuco Field, long leased up, but long neglected as before remarked. There is every sign now that Las Piedras is going to be most thoroughly drilled up in the next few months.

Personal Mention

E. L. Estabrook, chief petroleum engineer of the Pan American Exploration Co., (Pan American Eastern), has arrived here and will spend some time inspecting the extensive properties of this interest in this country, i.e., Huasteca Petroleum Co. and Mexican Petroleum Co.

Walter G. Tschudin, vice president and general manager of the Sinclair interests in Mexico, is back from an extensive trip.

Thomas Carter, general manager of the Cortes Oil Corp., (Atlantic Refining Co.), has left for a short business visit to Houston, Texas.

Major W. D. Marcuse, commercial manager of Cia. Mexican Holandesa, La Corona, S. A., (Royal Dutch-Shell), has left for Europe for business and pleasure bent.

With dry weather the past two weeks and some "dry northers" in evidence the roads are commencing to get in shape in the fields, the Panuco River is falling and more activity should result in the near future, especially in parts of the Panuco Pool.

CALIFORNIA FIELDS

(Continued from Page 48)

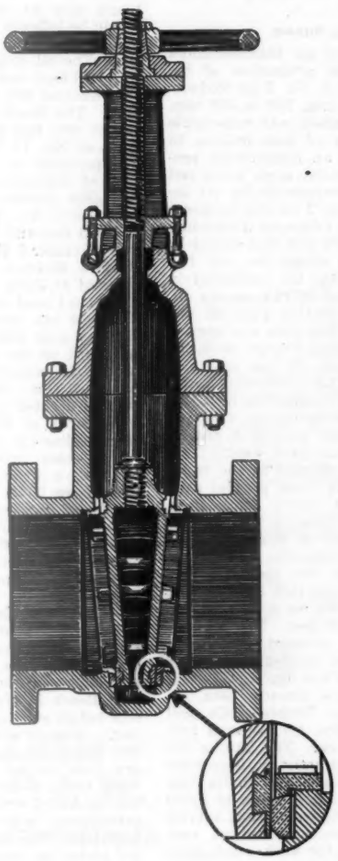
be expected under the circumstances. It is listed as a 50-bbl. pumper from 3,699 feet. The Central Oil Co. drilled No. 1 Hesse into bottom water at 3,325 feet and a cement plug put in the bottom of the hole. The Standard Oil Co. has just spudded in its first well on the recently acquired Newland lease in the southeastern part of the field but, inasmuch as the property requires deep drilling, it will be several months before the company learns whether its deductions are correct.

The cement plug which the Pan American Petroleum Co. put in No. 1 Jesurum in the Rideout section of the Whittier Field at 4,712 feet failed to accomplish the desired result. The well has just been put on a pumping test and, since the water content is about the same as it was before the plug was put in, it is evident that the bottom water has not been shut out. The McGinley Oil Co. brought in two new wells at Montebello during the past week and incidentally increased the daily output of the field 345 bbls. The company's best well was No. 21, drilled to 3,590 feet and finished with a 6¼-inch liner. The initial pumping was 225 bbls. of 19.2 gravity oil which cut 3 per cent. Number 17 was good for 120 bbls. of 18.1 gravity oil from 2,620 feet. The Standard got a light showing of oil and gas in No. 64 Baldwin at 3,540 feet but the indications were not of sufficient importance to warrant a test. The Superior Oil Co. is grading location for a well of the Standard Oil Co.'s Howard & Smith property and will try to extend the western limits of the field. It is believed the company has a good chance of developing at least small production. The St. Helens Petroleum has decided that it would be useless to spend any further time on No. 2 Mulholland at 4,210 feet, as the hole at this depth is full of junk. It will be plugged back to around 3,560 feet and an attempt made to produce from the upper zone.

Fullerton

No. 3 Fisher of the Shell at Fullerton, finished last week as a 1,170-bbl. flowing well, made 1,801 bbls. yesterday of clean 28.6 gravity oil. It was brought in last week flowing through a ¾-inch bean cutting 30 per cent water. The output cleaned up later, however, and, with the change from a ¾-inch to a ⅞-inch orifice, the pressure jumped to 780 pounds. The company spudded in No. 10 Orange shortly after the completion of No. 3 Fisher and reports a depth of 800 feet in this hole. The Union is still being delayed with mechanical trouble in its two Olinda wildcats but may be in a position shortly to resume drilling in No. 1 at 2,853 feet. The Brea Canyon Oil Co., Chanslor-Canfield Midway and Fullerton Oil companies all made fairly good progress during the week. The Birch-Royer Oil Co. seems to have secured a satisfactory water shut-off in No. 1 Ninno at Coyote and will core ahead a little farther before making a production test. The outcome of this hole is of considerable importance because several new wells will get under way if commercial production is secured in the deep zone.

The Julian Petroleum Co.'s No. 3 Mesa at Newport proved to be one of the best wells finished in that area in a long time and, if the output holds up anywhere near the initial production, the company will start several new holes within the next 30 days. The official completion is 92 bbls. of 10.1 gravity oil from 577 feet. The total cost involved was $3,860 and the actual drilling time 13 days. The company's No. 2 Mesa was unintentionally drilled into bottom water at 782 feet and, since the company has been unable to secure a satisfactory shut-off, it is quite likely that the hole will



Retaining ring renewable seat construction *means reduced upkeep*

Note the construction of the retaining ring, seat ring and seat ring gasket—indicated by the circle in the cross section view.

Should the seat ring become scored, a new one can be inserted by simply removing the bonnet and unscrewing the retaining ring. The wedge, too, is renewable. Compare the cost of such renewals with the replacement of a complete valve!

These Pratt & Cady Iron Body Gate Valves should outlast your pipe lines. Many put in service years ago have done this. Write for our catalog. The Reading-Pratt & Cady organization can supply steel valves and fittings, iron and bronze valves for every requirement of the petroleum industry.

PRATT & CADY
Regular Iron Body
GATE VALVES

Pratt & Cady Heavy, Iron Body Gate Valve, Stationary Spindle, 200 lbs. working pressure, 500 lbs. test.

Pratt & Cady Heavy, Iron Body Gate Valve, Rising Spindle, 200 lbs. working pressure, 500 lbs. test.

Pratt & Cady Extra Heavy, Iron Body Gate Valve, Stationary Spindle, 250 lbs. working pressure, 800 lbs. test.

Pratt & Cady Extra Heavy, Iron Body Gate Valve, Rising Spindle, 250 lbs. working pressure, 800 lbs. test.

READING STEEL CASTING COMPANY, Inc.
Pratt & Cady Division
BRIDGEPORT, CONNECTICUT
An Associate Company of the American Chain Co., Inc.
Boston Chicago Cleveland Detroit Hartford
Houston New York Philadelphia Pittsburgh
Rochester San Francisco Tulsa
Stocked by: Norvell-Wilder Hardware Co., Beaumont
Houston and Shreveport
Woodward, Wight & Co., Ltd., New Orleans
Reading Steel Casting Co., Tulsa

READING *for* steel
PRATT & CADY *for* iron *and* bronze
specializing for quality valves AND *fittings*

KEYSTONE COPPER STEEL

Maloneys on Queen City Lease, Kevin, Montana.

Vapor-Tight Tanks Save Money

EVAPORATION uses a two-edged sword. It cuts down both the Quantity and the Quality of your crude. It takes the lighter fractions first, lowering the gravity. It is one of the worst enemies you have.

You can't afford NOT to use vapor-tight tanks.

MALONEY TANKS are positively vapor - tight throughout, including decks. Valve equipment is the best to be had. You could not give your crude better protection than to store it in MALONEY Tanks.

"Alone in Quality"

MALONEY TANK MFG. CO.
Tulsa, Okla.

12 to 3,000 Bbls. Capacity

Packed in Steel-Bound Crates for Export

"Buck" Type Vacuum Pressure Valves and Vacuum Breakers furnished

MADE OF KEYSTONE COPPER STEEL

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MADE OF KEYSTONE COPPER STEEL

MALONEY

ALONE!

be abandoned, unless the next plug is satisfactory. Number 4 Mesa was cemented during the early part of the week and is just about ready to be drilled out. The Owl Oil Co. is getting ready to cement a string of 8¼-inch in No. 1 Mesa and will probably land it around 600 feet. Harry Whitcup is drilling ahead in his No. 1 Mesa at 540 feet and expects to make a pumping test during the next week or 10 days.

Midway-Sunset

The installation of an Ingersoll-Rand compressor increased production of the Federal Drilling Co.'s No. 1 at Midway in Section 20-31-24 from 100 to 300 bbls. daily. This hole, which was responsible for the development of deep drilling in this area, has been an intermittent producer for several months, sand, water and gas trouble being responsible for its inconsistency. Number 2 on this property is being cleaned out following its sanding up last week at 4,949 feet and should be ready for the pump within the next few days. The Valley Oil Co. succeeded in getting a 130-bbl. well of 14.1 gravity oil, when its No. 4 in Section 14-31-22 was put on the beam. The hole was carried down to 1,627 feet and finished with 690 feet of 8¼-inch liner, 50 feet of which was perforated. The California Petroleum's No. 6 Dorothy in Section 34-32-24, adjoining the property of the Calivada Oil Co., was the only good well put on production during the past week. This well was originally finished in the upper zone at 3,503 feet but later plugged back to 3,456 feet, from which depth it is now producing 340 bbls. of 26.1 gravity oil. The completion of this hole gives the California Petroleum Co. a daily output of 600 bbls. on this property from four wells. No. 4 on this lease, which is being carrieed down for a deep Obispo zone test, is at 4,600 feet. The Midway Northern Oil Co. accepted the Julian Petroleum's offer to develop its acreage in the Maricopa Flats on a fifty-fifty basis. Material has already been ordered and the Julian Petroleum Co. will start work on its first Obispo sand hole within the next week. The Trojan Oil Co. has found it practically impossible to fish out the 4¾-inch lost in its deep test and will cement it in place at 4,650 feet. A check of the wells being carried down to the Obispo zone showed very little change during the week, mechanical and water trouble holding up work in several. The El Dora Oil Co.'s No. 8, in Section 32-12-23, is standing cemented at 3,462 feet, while the General Petroleum Co.'s No. 10-B, in the same section, has just been drilled out after standing cemented at 2,500 feet for a week or 10 days. The Miocene Oil Co.'s No. 4 is being held up at 3,205 feet, pending the completion of a clean-out job, while the Pacific Oil Co.'s No. 5-A is being delayed at 2,300 feet because of defective casing. The United Oil Co. got a wet job at 3,615 feet, while the Transport Oil Co. is again cementing at 3,986 feet. The Midland Oilfields Co. was practically the only concern to make any headway, the company's No. 1 now going ahead at 2,760 feet and No. 7 rotating at 3,622 feet.

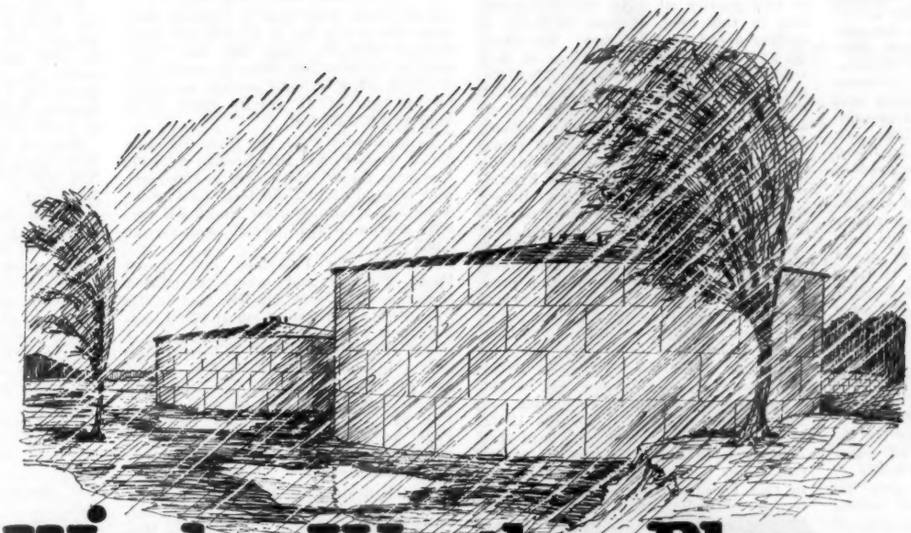
The Gross Drilling Co. picked up the pay in its well No. 2 at Elk Hills in Section 26-30-24 and a core just taken at 3,520 feet indicates the presence of a splendid sand. This hole should be finished as a 400 or 500-bbl. flowing well within two weeks, after which time No. 3 will be spudded in. The Union Oil Co. has started a new location in Section 26-30-24 to be known as No. 13 Elk Hills but has not yet started to grade. Number 12 on this property is being held up at 3,600 feet because of a lost bailer, but the delay will probably only be temporary. The wells of the Interstate and United Oil companies in this area have all the earmarks of dusters. The former's driller in Section 22-30-24 is down 4,700 feet, while the latter's test is logged at 4,820 feet. The Standard is rebuilding the rig over its well No. 10, in Section 31-30-25, destroyed a short time ago as the result of a gas blowout which developed at 4,580 feet. Charles Differding did not secure a shut-off in Section 26-30-24 and the hole has been recemented at 3,593 feet.

In the Ventura Avenue Field the General Petroleum Co. has started to redrill No. 5 Notten, which has been producing for some time from 4,665 feet. The company is of the opinion that another 250 feet will result in big production and this seems quite logical in view of the large wells finished nearby. The Associated Oil Co.'s next completion, barring mechanical trouble, should be No. 21 Lloyd now at 5,188 feet, although it should be followed into production a short time later by No. 22, which is at 4,990 feet. The oil string is being pulled from No. 12 Lloyd and the well will be deepened another 200 feet for better production. The Shell Co. has started work on two new rigs in this area, No. 5 Edison and No. 18 Gosnell, both of which will probably be spudded in before the close of the year. The Shell Co.'s present work consists of No. 8 Gosnell at 5,082 feet; No. 11, on the same lease, at 3,805 feet and No. 10 Taylor at 3,778 feet. Number 1 Hobson, of the Chanslor-Canfield Midway Oil Co., a wildcat, is reported at 3,291 feet, the formation being a hard sand streaked with shale. The Standard has started work on its first Ventura post hole, several of which will be drilled on the Argabrite lease in surveying the structure before starting the first deep test. The Temescal Petroleum Co. has decided to redrill and deepen its well No. 1 at Piru because of the severe decline in production. The company's other producer on this lease is pumping a little better than 100 bbls. daily from 2,098 feet and it is the intention of the company to bring No. 1 down to a comparable depth. The Union has just about finished No. 1 Caldwell on South Mountain at 2,390 feet and the outlook is quite favorable for good production.

Southern California Wildcats

The Associated Oil Co. has closed a contract with Fred Stone for a number of diamond core drill test holes to be put down on the Hellman property at Seal Beach in order to survey the property before starting work on another deep test. Stone's first prospect is located 500 feet southwest of No. 1 Hellman, a dry hole drilled by the Associated to 5,288 feet. Several of these survey holes will be drilled within the next few months preliminary to starting another deep rotary test. The Marland Oil Co. has not yet picked up anything in its No. 1 Bixby, northwest of the Associated's Hellman property, and the outlook is not any too promising at 3,745 feet. The Shell Co. is going ahead rather slowly and, as a result, there was practically no change in the status of the company's work. When the Artesia Oil Co. ran up against the rocks a few months ago several of the largest stockholders banded together and organized the Miller Oil Co. with the intention of completing the former company's wildcat near Artesia. The hole was carried down to 5,238 feet and, after several attempts to secure a water shut-off, work was suspended. As a result of the failure to fulfill contract obligations, the hole has reverted to A. L. Benson, the landowner, who has closed a contract with a drilling company, which will attempt to shut off the water and make a production test.

The Superior Oil Co. has already started to abandon No. 1 Vail at Bandini as a duster at 5,453 feet. The hole never had a showing of any kind and the abandonment was a foregone conclusion. No. 4 DeBaker, of the Bandini Petroleum Co., now at 3,630 feet, and No. 1 Couts of the Oak Ridge, at 5,035 feet, will also probably be unproductive. The Superior's wildcat at Belvedere Gardens has just passed 4,902 feet without finding any favorable indications and this hole will enter the doubtful class very shortly. The Shell Co. has not yet resumed drilling in No. 1 Menchago, north of Brea Canyon, but will probably do so within the next few days. It is believed that an early abandonment notice will be forthcoming on the Elbe Oil Co.'s test at Culver City, as this hole has not shown a single indication from the grass roots down to 5,010 feet. The Pan American Oil Co. has just about finished the rig for No. 2 Pacific Southwest at El Segundo but it will probably be another two or three weeks before actual drilling gets under



Wind and Weather Play Havoc with Wooden Roof Tanks

Other P. I. W. Products

Oil Refinery Equipment
Tanks, any style or size
Washington Separators
Stacks and Breechings
Standpipes
Penstocks
Riveted Pipe
Blast Furnace Equipment
General Light and Heavy Steel Plate Construction
G-E-M Bilged Steel Barrels
Presteel Drums

EVERY day stormy weather adds materially to the depreciation of your wooden roofs—every day increases your evaporation losses, your fire hazards and your insurance rates.

P. I. W. Gastight Steel Roofs or Steel Roof Tanks installed now will save you their cost before spring.

Immediate shipment of any sizes, in any quantities, from Sharon, Pa., or Kansas City, Kansas.

Address the nearest sales office.

P.I.W. STEEL PLATE CONSTRUCTION

The Petroleum Iron Works Company

Plants: Sharon, Pa., and Kansas City, Kansas.

Branches: New York St. Louis Tulsa Houston Kansas City San Francisco

way. W. E. Garner has resumed work in his Keystone well near Torrance, which was given a shallow production test at 660 feet. It is understood that the Marland Oil Co. will drill a test well on the Robert Behring property at Newhall, in Section 32-5-17. The company has held this lease for a long time awaiting favorable field developments but will be obliged to start work soon or relinquish the lease. The Milham Exploration Co. is making fairly good progress with No. 1 Conroy in the vicinity and has the hole down 1,121 feet at present. Neither the Petroleum Securities nor the A. T. Jergins Synd. has yet recovered from the fishing job which developed in their respective tests at Palos Verdes a week or so ago. The Standard Oil Co. is still held up with mechanical trouble in No. 1 Von Schriltz at Santa Ana Gardens at 5,219 feet but is going ahead in No. 1 Playen. 2 miles away, at 1,160 feet. The Shell Oil Co.'s Von Schriltz test at Talbert is down 3,100 feet in a hard sandy shale. Parsons & Kelley have started rig construction for their San Juan Capistrano wildcat and, although the boilers are on the ground, they have not yet been bricked up.

Northern California Wildcats

The Chanslor-Canfield Midway Oil Co. finally succeeded in shutting off water in its Delano wildcat after a battle of four months' duration. The well has been cleaned out to bottom and bailing at 3,000 feet shows some gas and oil colors. Preparations are at present being made to put it on a pumping test and, while officials of the company are optimistic, the general consensus of opinion seems to be that the hole will be unproductive. The Standard Oil Co. landed a string of 4¼-inch and made a production test of its 4,800-foot hole out on the McKittrick front, Section 25-29-21, but nothing favorable was found. The company's other test in this section at 5,000 feet is being reamed to bottom. George F. Getty is starting another well on the Grimes property on the Kern River front in Section 32-27-27. The first test was carried down to 520 feet and abandoned at this depth. Getty's latest completion was No. 2 Lehnhardt, on the Kern River front, brought in from 2,210 feet, the output being 189 bbls. of 13.2 gravity oil. His No. 2 Tegeler, also in this area, Section 22-28-27, is drilling ahead at 1,141 feet. The Main Oil Co. has suspended work on its first wildcat at Wasco, in Section 28-27-24, but is going ahead in No. 2 at 2,978 feet. The Associated Oil Co. twisted off some drill pipe in its Kerman wildcat at 4,960 feet and, unless a quick recovery is made, the hole will probably be listed for abandonment. The Fresno-United Oil Co. is still working at Raisin City endeavoring to effect a water shut-off at 5,481, but, notwithstanding the fact that several cementings have already been made, the hole is still wet. The Associated Oil Co. drilled several deep prospects in this area following the showings reported by the Fresno-United but pulled out when nothing was found. The General Petroleum Co. is plugging back its Kettleman Hills test in Section 28-22-18 preparatory to making a test or two of the upper showings before pulling out. The Marland Oil Co., in Section 12-22-17, is still rotating ahead in a hard gray sand at 5,440 feet. The Associated Oil Co., which is just resuming operations in this area, reports a depth of 1,530 feet in Section 12-23-18. The Bolsa Chica Oil Co. encountered a little gas in Section 30-23-19 at 1,348 feet and will go ahead slowly. The General Petroleum has just finished erecting the rig for No. 1 McGuire in San Luis Obispo County and should start rig construction for No. 1 Smith before the close of the week, as material is now being hauled in. The Harriman-Jones Oil Co. has completed the rig for its second well in Monterey County and, since drilling requirements call for spud before December 1, very little time will be lost in getting under way. The company will also continue work on well No. 1 with a view to deepening it a hundred feet or so. The Associated's Monterey test in Section 2-20-6 is just getting under way at 200 feet.

CORES!

Do you know what your mineral property is worth? Cores like these form not a picture, but an actual, continuous sample of your land. They tell you all there is to know, geologically, about it.

A Sullivan Diamond Core Drill

will enable you to learn surely, most quickly and at least cost, the vital facts about your mineral deposits, which will decide for you whether to develop or to call a halt. The cores form a complete, permanent record.

Do you want it?

"Fifty years of progress in diamond drills and drilling." That isn't the title of our new 80-page catalogue, but it might be.

Just ask for Catalog No. 1580-O.

SULLIVAN MACHINERY COMPANY
88 East Adams St., Chicago
Oklahoma State Agent, George E. Failing, Garber, Tulsa.

KANSAS

(Continued from Page 34)

gravity crude from sand at 2,034-84 feet. Same company's No. 6, C NE SW SW, Section 33-22-11, made 500 bbls. from sand at 1,910-44 feet. Same concern's No. 3, C NW SE SW, same section, was good for 80 bbls. of 41 gravity crude from sand at 1,915-25 feet.

In the Seeley Pool, the Pure Oil Co.'s No. 2, C NW NE SE, Section 8-23-11, was good for 35 bbls. after a 120-quart shot in sand at 1,927-75 feet. T. K. Simmons had a failure in his No. 2, SE cor. SW, Section 9-23-11, which was dry at 2,085 feet.

Between the Polhamus and Agard Pools, Fontain and others abandoned their No. 1, NE cor. SE NE, Section 27-24-9, with a bad fishing job at 2,205 feet. Polhamus and others shot their No. 3 C NE NE SE, Section 27-24-9, with 160 quarts in sand at 2,123-88 feet and it had 500 feet of oil in the hole. The Mid-Kansas Oil & Gas Co.'s No. 3, C NW SE NE, Section 19-25-9, Sallyards Pool, was completed as a 75-bbl. well due to a shot of 50 quarts in sand at 2,396-2,420 feet.

In the Scott Pool, the Empire Gas & Fuel Co.'s No. 1, SE cor. NW, Section 19-23-9, was drilling at 730 feet. The Mission Oil Co. completed its No. 4, C NE SW SW, same section, for 250 bbls. following a shot of 60 quarts in sand at 2,587-2,611 feet. The same company's No. 5, CWL NW SE SW, same section, was shot with 120 quarts in sand at 2,587-2,607 feet, making 200 bbls. A rig was up for No. 6 Morris, SE cor. SW SW, Section 19-23-9. The Phillips Petroleum Co. completed No. 3, C SE NW SW, Section 19, for 200 bbls. with a 120-quart shot in sand at 2,580-2,617 feet, and had a rig up for No. 2 Norma, C NW NE SE, same section. The White Eagle Oil & Refining Co. spudded its No. 4, C NW NW SE, Section 19-23-9, and the Phillips Petroleum Co. spudded No. 1 SE cor. NW NW, Section 20-23-9.

Over in the southeastern corner of the same township, a good well was added to the Thrall Pool. It was Simons & Darby's No. 3, SE cor. Section 36-23-9, being a 100-bbl. well after a 70-quart shot at 2,331-74 feet. A rig was on the ground for the same interests' No. 4 Teeter, CEL NE SE SE, same section.

In the Thrall Pool, the Mid-Kansas Oil & Gas Co.'s No. 29-B, C NW SE NE, Section 31-23-10, was completed with a shot of 180 quarts in sand at 2,279-2,348 feet, good for 150 bbls. Same concern's No. 33 Martindale, a twin well, in the CWL SW SW SW, same section, had a rig building.

In the Burkett Pool, Cornell had a rig on the ground for his No. 1 Winnager, SW cor. SE, Section 14-23-10. Roth & Faurot and the Mission Oil Co. were drilling below 300 feet in No. 3-A Scott, C SE NW, Section 22-23-10.

In the Browning Pool, the Theta Oil Co.'s No. 13 Browning, CNL NE NE, Section 17-22-10, had sand at 2,270-2,356 feet, carrying small show of oil and water. The well was abandoned at 2,356 feet. The Theta Oil Co.'s No. 13, CNL NE NE, Section 17-22-10, an old well deepened, was dry and plugged at 2,475 feet. The Sinclair Oil & Gas Co. was drilling its No. 31, C NW SE SW, Section 20-22-10, at 710 feet. A rig was also up for No. 32 Browning, CWL NW NE SW, same section.

In the Teeter Pool, Greenland and others completed their No. 17, C SW SE NE, Section 10-23-9, for 300 bbls. after a 200-quart shot in sand at 2,337-93 feet. The same interests' No. 18, C NW NE SE, same section, swabbed 150 bbls. from sand at 2,300-65 feet. The Skelly Oil Co.'s No. 1, C NW NE NE, Section 15-23-9, was completed for 125 bbls. of 42 gravity oil in sand at 2,330-69 feet, after a 40-quart shot. No. 2, C SW NW SE, same section, bridged after 200-quart shot in sand at 2,336-96 feet.

In the Scott Pool, the Empire Gas & Fuel Co. had a rig on the ground for No. 8 Scott, C SW SW SE, Section 24-23-8. The Sinclair Oil & Gas Co. abandoned its No. 1, C NE NE NW, Section 36-23-8, at 2,869 feet.

In the Pixlee Pool, the Empire Gas & Fuel Co. had a rig up for No. 1 Ateyo, CEL NE NE NW, Section 6-22-10.

In the pool northwest of the Seeley and Wick areas, Davis Hazlett's No. 8, SE cor. NE, Section 12-22-10, was good for 200 bbls. following a shot of 190 quarts in sand at 2,036-80 feet. The Skelly Oil Co.'s No. 3, C NE NW NW, Section 13-22-10, was dry and abandoned at 2,205 feet.

East of the Thrall and Agard Pools, The Texas Co. abandoned its No. 1, C NW NW NW, Section 5-24-10, as dry at 2,369 feet.

In the Agard Pool, the Mission Oil Co.'s No. 1, C SW SW SE, Section 23-24-9, made 25 bbls. of 41 gravity oil after a shot of 60 quarts in sand at 2,096-2,119 feet, total depth being 2,165 feet.

In the new pool east of Thrall and southeast of the Burkett Pools, C. C. Hubbard was rigging up his No. 1 Freeman, C NE NW SE, Section 6-24-11. Five miles south of there, Ward McGinnis had a rig on the ground for No. 1 Wiggins.

The Foster Oil Co. had a machine on the ground for No. 2 Hughes, C N half NW NW, Section 26-24-12. Parish and others abandoned their No. 1, C NE NE NE, Section 29-24-12, as dry at 1,849 feet.

In the eastern part of Greenwood County, the Prairie Oil & Gas Co. completed its No. 2, CNL SE, Section 16-24-13, for 71 bbls. natural from sand at 1,639-52 feet.

In western Woodson County, Fields & Cross were drilling their No. 1, C NE NE SE, Section 9-25-14, at 925 feet.

Southwest of Eureka, in Greenwood County, Conant and others spudded their No. 1, C NW SE SW, Section 26-26-9, at 500 feet.

Chautauqua and Elk

Northwest of Sedan, in Chautauqua County, the Noble Oil & Gas Co. spudded a semi-wildcat, No. 1 Biggs, C NW NW NE, Section 7-33-11.

In northwestern Elk County, McCullough shut down No. 1, C NE NE SE, Section 4-29-9, at 1,250 feet.

Barber & Lamon were drilling their No. 1 Parkins, C NW NE, Section 33-29-9, at 425 feet.

In southwestern Elk County, the Anderson Brothers spudded a twin well, No. 1-A Stiles, CSL SE NE, Section 16-31-9.

Butler Operations

In southeastern Butler County, Bason & Boyle were drilling at 1,260 feet in their No. 1, C SW NW SE, Section 11-28-7.

In the South Augusta Field, the Sinclair Oil & Gas Co. and Empire Gas & Fuel Co. had a rig on the ground for their No. 13 Skaer, C SW SE NE, Section 35-27-4. The Magnolia Petroleum Co. had a rig up for its No. 5 Skaer, CWL SW SW, Section 25-27-4.

In the southwestern end of the Sallyards Pool, Butler County side, the Federal Oil Co.'s No. 3, C NE NW SW, Section 29-26-8, was completed for 75 bbls. after a shot of 190 quarts in sand at 2,747-92 feet. Same concern's No. 4, CNL NW SW, was drilling at 300 feet and No. 7, NW cor. SW SW, was drilling below 250 feet and a rig was on the ground for No. 8-A Dooley, C SW SW SW, all in same section.

Connell spudded his No. 1, NE cor. Lot 17, Section 7-27-8.

Township 27-7, eastern Butler County, was busy as a result of recent discoveries there, coupled with its position in the trend extension of the Golden Lane. John Rogers was rigging up his No. 1 Cleary, C NE NE NE, Section 33-27-7; The Phillips Petroleum Co. was also rigging up No. 1 Truesdale, SW cor. Section 27-27-7. The Sinclair Oil & Refining Co. had a rig up for its No. 1 Barnhill, C NW SE SE, Section 22-27-7. A disappointment was received in Flack, Davidson and others' No. 1-A, C SW SE NW, Section 23-27-17, which was dry and abandoned at 2,824 feet. The Lewis Oil Co.'s No. 2, C SE NE SE, Section 18-27-7, had sand at 2,594-2,608 feet, good for 9,-

000,000 feet of gas but wasn't completed.

Joe Liggett's No. 1, C SW SW NE, Section 36-27-6, was dry and plugged at 2,803 feet. In the Leon Pool, Hoyt and others were drilling their No. 7 Bollmer, C SE NE NE, Section 19-27-6, at 750 feet.

In the Young district, the White Eagle Oil & Refining Co. was rigging up its No. 1 Wilhite, C SW NE SW, Section 27-26-7. The Phillips Petroleum Co. had a rig on the ground for its No. 1 Ellsworth, C NW SE SW, same section.

Mason & Ralston had a rig up for their No. 2 Schoenrock, NE cor. SE SW, Section 32-26-6.

In a southwest direction from the Little Golden Lane, Hayes, Roberts & Sheldon's No. 1, C NW NW NE, Section 4-24-8, was dry and abandoned at 2,757 feet. Joe Nathan and Skelly Oil Co. had a rig up for No. 1 Harsh, NW cor. SE Section 32-23-8.

South of Potwin, the Skelly Oil Co. had a rig on the ground for its No. 2 Wilson, C NW SW NW, Section 13-25-3.

About 5 miles east of the Rock Pool, in Cowley County, Patterson & Crosby abandoned their No. 1, C NW NW NE, Section 16-30-5, as dry at 3,434 feet. In the next township east, several miles northeast of the Eastman Field, Christy and others' No. 1, C SE SE SE, Section 24-20-6, was a failure at 1,800 feet.

In the Slick-Carson Field, the Carter Oil Co.'s No. 7, C NE NE SE, Section 19-32-3, was completed for 420 bbls. of 39.5 gravity oil in the Wilcox sand at 3,432-42 feet.

Northwest of Arkansas City, the Roxana Petroleum Corp. had a machine for No. 1 Chaplin, CSL SE SW SE, Section 16-34-3.

In the Rainbow Bend Field, the Waite Phillips Co.'s No. 5, C NW NE SW, Section 21-33-3, was completed in sand at 3,236-79 feet, total depth 3,281 feet, for 115 bbls. of 39.6 gravity oil. Same company had a rig on the ground for No. 6 Nelson, C SE NE SW, Section 21-33-3.

North of Wilmot, in Cowley County, Pattee & Banks had a rig on the ground for No. 1 Withers, C NE NE NW, Section 32-30-5.

Roth & Faurot were drilling below 500 feet in their No. 1 Sickles, CSL SW SE SW, Section 20-31-5.

In the Eastman Field, the Empire Gas & Fuel Co.'s No. 2 Eastman, CWL NW NW, Section 5-31-6, was a rig.

In the Dexter Pool, Forrester and others were building a rig for No. 1 Smith, C NW SE NW, Section 18-33-7.

Southwest of Dexter, Sidwell and others spudded No. 1 Day, C NE NE NW, Section 24-34-6.

OKLAHOMA FIELDS

(Continued from Page 34)

SW, Section 25-13-14, was completed for 2,000,000 feet of gas in sand at 715,900 feet after plugging back from 3,000 feet where a sand was topped carrying a hole full of water.

The Waite Phillips Co. abandoned its No. 7, NW cor. NE SW, Section 14-15-11, as dry at 2,836 feet. The Iron Mountain Oil Co.'s No. 1, SE cor. SW NW, Section 8-15-12, was a failure at 2,737 feet. T. A. Johnston's No. 2, CWL SW SW, Section 10-15-12, topped sand at 2,120-90 feet and another sand at 2,629-40 feet, making 1,000,000 feet of gas and 150 feet of oil in the hole. It was drilling ahead. The Olean Petroleum Co.'s No. 8, C SE NW, Section 14-15-12, topped sand at 1,842-85 feet and was shut in for 10,000,000 feet of gas. McCullouch and others spudded No. 1, NE cor. SE NE, Section 15-15-12. The Noble Oil & Gas Co. topped sand at 2,143 feet in its No. 1, C SW SW NW, Section 23-15-12, and drilled sand to 2,155 feet. After a shot of 40 quarts, it pumped 15 bbls. of 39 gravity oil. W. E. Hammon also had 22,000,000 feet of gas in his No. 3, C SW SE SW, Section 26-15-12, not completed. Weirson and others had a rig on the ground for No. 1 Douglas, NW cor. Section 35-15-12.

Just north of Okmulgee, Sheldon and others spudded their No. 1 Smith, SW cor. SE SE, Section 35-14-12. T. A. Johnson spudded No. 2 Colbert, C SW SW NW, Section 22-14-12. The Kingwood Oil Co. had a rig on the ground for No. 2 Haynes, C NE SW NE, Section 36-14-12.

F. D. Murta and others were drilling at 400 feet in their No. 1, SW cor. NW SW, Section 4-15-13. J. J. Schock and others were below 610 feet in their No. 1, C SW SE SW, Section 9-15-13. W. B. Pine shot his No. 3, CNL NW NE, Section 18-15-13, with 10 quarts, completing it for 250 bbls. from sand at 2,687-97 feet. Gravity is 43 degrees. Pine's No. 6 Doyle, CNL NE NW, same section, had a rig up. The Southwest Oil Fields Co. was drilling at 200 feet with a machine in its No. 6 Morrison, CSL SE NE, Section 35-15-13.

C. C. O'Dell's No. 1, NE cor. NW, Section 10-15-14, was dry and plugged at 2,145 feet. The Invaders Oil Corp. had a rig for No. 15 Miller, C NW NE SW, Section 16-14-13, a twin to their No. 6.

T. B. Slick was rigging up a machine for his No. 2 Sack, NW cor. NE NW, Section 14-14-14.

A duster was abandoned by the Laurel Oil & Gas Co., its No. 1, NW cor. SE SE, Section 28-13-11, at 2,656 feet. H. C. Marcy and others had a rig built for No. 1, CWL SE NW, Section 8-13-12. The Holly Oil & Gas Co. was drilling its No. 2, SW cor. SE NE, Section 32-13-12, at 600 feet.

Maroney and others spudded their No. 1-A, C SE NE NW, Section 18-12-12, and the Aztec Oil Co. abandoned its No. 4, NW cor. SE SW, Section 31-12-12, as dry at 3,355 feet.

The Utah Oil Co.'s No. 4, NW cor. SE, Section 15-13-14, was good for 200 bbls. in sand at 2,436-38 feet, but was still drilling. W. R. Summerville spudded No. 9, NE cor. NW SW, Section 25-13-14.

The Porter Oil Co.'s No. 5-W, NE cor. SW NW, Section 1-11-13, was drilling at 500 feet.

Creek County

In Creek County, the Aztec Oil Co.'s No. 1, NW cor. Section 12-17-8, was drilling at 250 feet. The Prairie Oil & Gas Co.'s No. 2, C NE SE, Section 13-17-8, had a 5-bbl. show in the Peru sand at 2,150-90 feet, and was estimated to be making 3,000,000 feet of gas from the Bartlesville sand at 2,640-47 feet. The 6-inch casing was being run to drill in. Alvord & West completed their No. 2, SW cor. NW SE, Section 14-17-8, with a 60-quart shot in sand at 2,240-75 feet, after which it made 130 bbls. of 42 gravity oil.

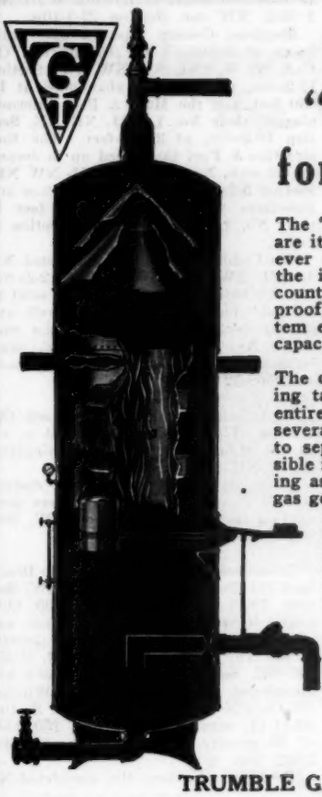
The Oklahoma Natural Gas Co.'s No. 1, SE cor. NW, Section 6-15-7, was completed as a 16,000,000-foot gasser in sand at 3,595-3,641 feet. The Haskell Oil Co.'s No. 3, SE cor. NW, Section 12-14-8, was good for 310 bbls. after a shot in sand at 2,430-76 feet. Gravity is 41 degrees. The Skelly Oil Co.'s No. 9, NW cor. SE, Section 12-14-8, was estimated good for 50 bbls. It was cleaning out after a 120-quart shot in sand at 2,410-53 feet. The Mountain State Oil Co.'s No. 2, C NW NE SW, Section 13-14-8, was cleaning out after a 90-quart shot in sand at 2,355-79 feet, estimated good for 40 bbls. The Texas Co. was drilling its No. 4, C SE SW NW, same section, at 310 feet.

J. H. Wright was drilling at 200 feet in his No. 4, SE cor. SW NW, Section 24-17-10, and was building a rig for his No. 3 Goody, SW cor. NE NW, Section 25-17-10.

The Texas & Pacific Coal & Oil Co. spudded its No. 7, SW cor. NW, Section 17-16-9.

The Independent Oil & Gas Co.'s No. 2, NW cor. SW SE, Section 29-15-10, was drilling at 320 feet. The Continental Oil Co.'s No. 3, NE cor. NW NE, Section 34-15-10, was building rig.

Roy Donnelly, trustee, spudded No. 4, CSL SE SW, Section 17-14-10. The Producers & Refiners Corp. had a 105-bbl. showing natural in the No. 1, SE cor. NE SE, Section 18-14-10, in sand at 2,857-79 feet, and were preparing to shoot. The Southwestern Petroleum Corp.'s No. 4, NW cor. SE SE, Section 18, had a 60-bbl. showing at 2,867-96 feet and was resetting csaing to shoot. C. F. Noble's No. 6, NE cor. NW, Sec-



The Trumble's "Got the Guts" for Real Service!

The "guts" of an oil and gas separator are its "insides." A separator may look ever so rugged from the outside, but the inside workings are what really count, and the Trumble is "indigestion proof," because its patented baffle system enables it to handle a tremendous capacity without interruption.

The centrifugal baffle takes the incoming tangent of oil and gas around the entire inside surface of the separator several times and gives the gas a chance to separate from the oil. It is impossible for the oil to drop and cause foaming as it clings to the side walls. The gas goes back up through the baffle and is kept from channeling by a baffle in the top of the separator. It is impossible for the gas to go out through the oil outlet as there is a seal over the oil outlet at all times.

It will pay you to write for full information on the Trumble and its unrivalled performance in all principal oil fields.

TRUMBLE GAS TRAP CO.
801 Higgins Building Los Angeles, California
Eastern Representative: C. F. CAMP,
221-223 E. Archer St., Tulsa, Okla.

BAKER CASING SHOE CO.

BAKER

BAKER ROTARY HOLE GUIDES

The Baker Rotary Hole Guide is a big improvement over old methods in rotary drilling. It is of correct design for a shoe guide and floating plug, and grips the shoe with a "bull-dog" grip that will not work loose. Can be fitted to the casing shoe easily and quickly, eliminating the expense and loss of time necessary with the ordinary solid plug.

BAKER
BACK-PRESSURE VALVES

When fitted to the Baker Rotary Hole Guide this valve accomplishes the same results as a floating plug. When cementing, it eliminates the necessity of closing in the well or maintaining pressure on the casing to keep the cement outside. It permits the bailer to be run immediately after cementing to remove any superfluous cement left in the casing. It holds the pressure when a connection breaks, or a pump is disabled. Eliminates the use of wooden spreaders or spacers, when a baffle plate is used in the casing.

Mid-Continent Representatives:
B. & A. Specialty Company,
404 W. First St.,
Tulsa, Oklahoma

BAKER CASING SHOE COMPANY

Export Representatives:
Buck & Stoddard,
30 Church St.,
New York City

BAKER CASING SHOE COMPANY
Box L,
Huntington Park, California.
Coalinga, Calif. Taft, Calif.

tion 20-14-10, was shot with 15 quarts twice and produced 190 bbls. afterward from sand at 3,373-94 feet. Gravity is 41.1 degrees.

Seminole County

North of Wewoka, Seminole County, the Southwestern Petroleum Corp. had a rig on the ground for No. 1 Peter, C NE SE NE, Section 18-9-8.

The Prairie Oil & Gas Co. was moving in a rig for its No. 1 Tommy, SE cor. SW NE, Section 25-8-7. The Magnolia Petroleum Co. completed its No. 1, CWL SW NW NE, Section 28-8-7, for 18 bbls. Sand was drilled from 3,210-3,235 feet. Water was encountered at 3,305-09 feet and the hole was plugged back.

The Champlin Refining Co., Bass and Phillips' No. 1, NE cor. NW SW, Section 24-8-8, Hughes County, was temporarily shut in for 15,000,000 feet of gas at 3,280-3,302 feet. The tools were lost in the hole.

In the Yeager Pool of Hughes County, E. L. Robinson and others' No. 1, SW cor. NW, Section 17-8-10, had 50,000,000 feet of gas in sand at 2,787-92 feet. Same interests' No. 2, C NW SW NW, same section, had 30,000,000 feet of gas at 2,740-62 feet. Total depth was 2,820 feet. The Independent Oil & Gas Co. completed its No. 4, C SE NE SE, Section 18-8-10, for 35 bbls. of oil and 15,000,000 feet of gas in sand topped at 2,692 feet. The bottom of sand was 2,750 feet and total depth of hole 2,815 feet. A rig was completed for the McMan Oil & Gas Co.'s No. 1 Smith, SE cor. NW, Section 18-8-10.

In the Cromwell Field, Seminole County, the Continental Oil Co. was rigging up its No. 3 Williams, NW cor. SE SW, Section 28-11-8.

Grady County

Southwest of Chickasha in Grady County, Becker and others were rigging up a rotary for No. 1 Brown, C NW NE, Section 29-6-7w.

In the Chickasha gas area, the Skelly Oil Co. completed No. 2, SW cor. NW NW, Section 23-5-8w, for 2,500,000 feet of gas in broken sand at 1,356-74 feet. Hall & Briscoe abandoned their No. 3, C E half NW NW, Section 25-5-8w, as dry at 1,452 feet. The Carter Oil Co. finished its No. 5, C SW SW NW, Section 26-5-8w, in sand at 2,315-50 feet good for 8,750,000 feet of gas. The Magnolia Petroleum Co. was drilling at 200 feet in No. 5 Farewell, C SW SW SE, same section, and the Little Nick Oil Co. had a rotary rig built for No. 2 McCaughtry, C N half NW NW, Section 35-5-8w. The Carter Oil Co. was building a rig for its No. 2 Dryden, CEL NW SW, Section 2-4-8w, and the Oklahoma Natural Gas Co. was also building a rig for its No. 2 Dryden, C SW NW, same section.

In the southeastern corner of Grady County, the Garvin Drilling Co. shut down its No. 1, CSL SE NE SW, Section 35-3-5w, at 120 feet. Melton and others abandoned their No. 1, SW cor. NE, same section, at 1,565 feet.

Pontotoc County

Southeast of Ada in Pontotoc County, Jack Lloyd and others completed their No. 3, SW cor. NW NE, Section 6-3-7. The sand record was 1,146-69 feet, and the well made 95 bbls. in three days. Gravity is 31 degrees.

Stephens County

In northern Stephens County, the Pauline Oil & Gas Co. and Clark & Cowden were rigging up a rotary for No. 2 Dyche, NW cor. SE NE, Section 2-2-5w. The Knox Petroleum Co. abandoned its No. 1, SW cor. NW, Section 12-2-5w, in the red beds at 2,620 feet. Dave Montgomery was drilling at 50 feet in his No. 1, C SE SE NW, Section 29-2-5w.

East of Lawton in Comanche County, Harry Hanbury cemented surface casing in his No. 1, NE cor. SW, Section 6-2-9w. The Magnolia Petroleum Co. completed its No. 2, C SE SW NE, Section 30-2-9w, in sand at 2,053-55 feet, flowing 60 bbls. through 3-inch tubing and packer. The same concern was building a rig for No. 4 Price, CWL NW SE NE, same section.

The Consolidated Oil Co. had a rotary rig up for a Comanche County test about 15 miles southeast of Lawton in its No. 1 Gill, NW cor. Section 27-1-10w.

Stephens County reported the usual quota of dusters. The Commercial Oil Co.'s No. 3, CSL SW SW SW, Section 12-2s-8w, was dry and abandoned at 1,830 feet, and the Muse & Pace interests plugged their No. 1, CSL NE NE, Section 10-2s-8w, at 2,250 feet. The Empire Gas & Fuel Co. rigged up to deepen its old well, No. 7 Miller, CNL NW NE, Section 5-2s-8w, at 1,998 feet. Pace and associates were drilling at 25 feet in their No. 1-A, SE cor. NW, Section 2-2s-8w.

The Commercial Oil Co. completed No. 4, CSL SW SW SW, Section 12-2s-8w, for 100 bbls. on the pump from sand at 1,728-34 feet. It is a twin well and gravity is 39 degrees. The same concern's No. 1, NW cor. SW SE, same section, was good for 90 bbls. from sand at 1,508-32 feet.

Miscellaneous

In Tillman County, southwestern Oklahoma, Tipton and others had a rig on the ground for No. 1 Hummingbird, C NE NE, Section 6-5s-15w.

Southeast of Pauls Valley in eastern Garvin County, Cosden and others were drilling their No. 1, NE cor. SW, Section 32-3-3, at 200 feet.

Okfuskee County

In eastern Okfuskee County, the Riverland Oil Co.'s No. 3, C SE SW SW, Section 19-11-11, which made 190 bbls. initial from sand at 2,290-2,316 feet, was good for 50 bbls. on the pump. Gravity is 30. The Savoy Oil Co.'s No. 1, C NE SE SE, Section 21-11-11, was dry and abandoned at 3,030 feet. The Windsor Oil Co.'s No. 4, C NE SW NW, Section 22-11-11, was completed for 150 bbls. of 39 gravity oil from sand at 2,590-2,632 feet.

Buckles and others also completed No. 15, C SW NW, Section 5-11-12. The hole was lost at 2,471 feet and plugged back to sand at 2,045-79 feet where an 80-quart shot made a 30-bbl. well.

A rig was built for John Burns' No. 1 Cinda, NE cor. SE NE, Section 12-12-10. The Amerada Petroleum Corp. also had a rig on the ground for No. 1 Chupco, NW cor. SE SE, Section 17-12-10.

The Josey Oil Co.'s No. 1, C SW NE NW, Section 33-12-11, which topped sand at 3,438-3,550 feet, made 550 bbls. initially and 316 bbls. the second 24 hours with tools in the hole. The G. M. Oil Co.'s No. 1, CSL SE SE, Section 34-12-11, was dry and abandoned at 3,730 feet.

The Atlantic Oil Producing Co.'s No. 1, C NE NE NE, Section 25-11-10, was a failure and plugged at 3,046 feet.

In Seminole County, the Magnolia Petroleum Co. had a rig and some tools for No. 1 Carolina, SW cor. NW, Section 14-8-7, and also had a rig on the ground for No. 1 Norval, SW cor. SE SW, Section 14-8-7. The Prairie Oil & Gas Co. was drilling its No. 1, SE cor. NE NE, Section 15-8-7, at 600 feet, and the Magnolia Petroleum Co. was building a rig for its No. 3 Carolina, NE cor. SE NE, same section.

In the Wewoka Field, the Magnolia Petroleum Co. completed its No. 3, SW cor. Section 32-8-8, for 5 bbls. in sand at 3,135-78 feet.

In the Papoose Pool, Hughes County, the Minnehoma Oil Co. had a rig on the ground for No. 3 Cain, C SE SW NE, Section 1-9-9. The same company's No. 2, SW cor. NE, same section, was completed for 596 bbls. of 39 gravity oil in sand at 3,355-3,400 feet. The well was also making 2,500,000 feet of gas. The Phillips Petroleum Co.'s No. 8, CEL NE SE SE, Section 3-9-9, was also completed for 30 bbls. after a 5-quart squib in sand at 3,278-3,300 feet.

In the next township east, the Yarnell Drilling Co.'s No. 2, C SE SE NW, Section 23-9-10, was dry and abandoned at 3,138 feet.

In the Yeager Pool, E. L. Robinson shut in his No. 1, SW cor. NW, Section 17-8-10, for 50,000,000 feet of gas in sand at 2,787-92 feet. His No. 2, NW cor. SW NW, same section, was also shut in for 30,000,000 feet of gas in sand at 2,735-62 feet, with total depth at 2,820 feet. The Dixie Oil Co. was spudding its No. 3, NE cor. SE, Section 18-8-10.

East of Holdenville, McCullouch and others were drilling at 400 feet in their No. 1, SE cor. NE NW, Section 12-7-9.

Muskogee County

Harsher & Slusher spudded their No. 3, NE cor. SE NW, Section 35-15-16, Muskogee County. The Black Jack Oil Co. abandoned its No. 1, CEL NE SE, Section 9-15-17, as dry at 1,460 feet.

In the eastern part of the county, M. E. Johnson was drilling his No. 1, C SE NW NE, Section 30-14-19, below 350 feet.

In McIntosh County, Travis & Douglas abandoned their No. 1, C NE NE NE, Section 1-12-17, as dry at 2,280 feet.

In McIntosh County, the Sands Petroleum Co. abandoned its No. 1, C SE SW SE, Section 19-12-14, as dry at 2,943 feet. N. J. Weidle likewise plugged his No. 1 Asbell, CNL NE SE NW, Section 2-11-17, at 843 feet. The Western Natural Gas Co. was deepening its old well, No. 1 Scott, NW cor. SW SE, Section 29-11-17, at 3,050 feet.

BUYING OF TUBULAR GOODS AT LOW EBB; EXPECT INCREASE THIS MONTH

By B. E. V. Luty

PITTSBURGH, Pa., Nov. 30.—Buying of oil country tubular goods is now believed to be down to its low point for the year. From some fields there is scarcely any demand, while from others, little affected by weather conditions, there is nearly as heavy demand as there was three or four months ago.

The advance made in Pennsylvania crude recently is expected by pipe mills to spread to various markets, but on the whole the pipe mills do not take a great deal of stock in oil statistics, feeling that the time of year has much more to do with the volume of demand. In this connection they are expecting a revival of buying in December, for deliveries to begin in January after annual inventories are out of the way. Mil's feel that buyers have ample reason to build up such stocks as may be desirable for the smooth and orderly conduct of their business, pointing out the fact that the pipe trade has made a new record in sustaining prices for a period of more than two years and a half, while with the strong position the steel trade in general now occupies there can be no thought of any decline.

Buying of merchant pipe by jobbers all over the country continues at the former good pace, there being no let up even as the annual inventory date approaches, for jobbers have absolutely no stocks to liquidate, and practically no stocks at all. A general stocking up after January 1 is expected.

In view of the prospects pipe mills are now engaged in replenishing their own stocks, which also had been low. It may be estimated that the pipe mills as a whole are now running at about 70 per cent of full capacity, involving about 55 per cent for current shipments and 15 per cent for stock.

The steel market in general continues in its strong position, with active buying practically all along the line, chiefly for as early deliveries as mills can make. There are ups and downs in individual lines, according to circumstances, but the general swing has undergone practically no change during the month now ending.

Additional rail orders in the week bring the total engagements for 1926 delivery to fully 1,600,000 tons, with about 100,000 tons still pending.

While freight car buying in the past few weeks has not been at all heavy, judged by old time standards, it has been much heavier than at any time for more than six months. Car builders have just placed 40,000 tons of steel with Chicago district mills and are closing on about 60,000 tons with Pittsburgh district mills, while there are protections out for some cars now under negotiation.

Steel ingot production in November is estimated at a few per cent above that of October, when the rate was approximately 45,000,000 tons a year. As the record high rate was 50,000,000 tons, twice reached, but only sustained for a few weeks, the present rate is a very good one and considering the prospects of its holding for quite a while the situation, from the tonnage standpoint, is the best the steel trade has had. The same cannot be said of prices, which in some lines are much lower than in recent periods of extra activity.

The point made by steel producers is that the present buying movement is particularly healthy in character, not resting upon sentiment, but upon actual current consumption. While buyers may be replenishing stocks to a limited extent, it is held that there would not be any extensive stocking at this time of year, hence the heavy shipments now being made betoken consumption at almost as heavy a rate.

The local pig iron market has been quiet in the past week, with prices easily maintained.

Billets are firmer and may become thoroughly established at $35, which would leave no question about forging billets being worth all of $40.

Connellsville coke has reacted somewhat more, being now $4.50 to $5.

16,000 Standard Oil Employes Will Own $40,000,000 in Stock

NEW YORK, Nov. 28.—At the close of the year approximately 16,000 employes of the Standard Oil Co., New Jersey, will obtain full title to some 900,000 shares of the company's common stock, purchased under the company's partial-payment plan, inaugurated about five years ago, which is expected to be extended for another three years. This stock represents nearly 5 per cent of the total common stock, and has a current value of about $40,000,000. Taken as a group, the employes will rank second to John D. Rockefeller Jr., as the largest holders of the corporation's stock.

A special meeting of the stockholders will be held today to vote on the proposed three-year extension of the plan, under modified terms.

President Walter C. Teagle, in the current issue of The Lamp, the company's organ, extends "the heartiest congratulations and good wishes of the shareholders and executives." "These employes, Mr. Teagle continued, "have been enabled to become the owners of this stock not alone by their systematic savings but by the action of the shareholders, who five years ago agreed to allocate for the purpose 50 cents for every dollar saved by the employes, or one-third of the cost of the stock now being acquired.

"If the great bulk of the stock which beecomes the individual possession of the employes is regarded by them as a permanent investment, and if a condition of actual partnership obtains thereafter on a large scale, it will then be demonstrated that this experiment in industrial relations has become an actual reality, and the company (which, after December 31, will mean investment shareholders and employe shareholders alike) will benefit accordingly."

DEATH OF FRED ORGEL

CHATHAM, Ont., Nov. 28.—Word has been received of the death recently in Detroit, Mich., of Fred Orgel, well known in the Petrolia Oil Field at the time of the oil boom. He was employed with the original Imperial Oil Co. at Petrolia, before the reorganization, and made his home in Petrolia for about 35 years. A wife, three daughters and one son, all of Detroit, survive.

FIVE MID-CONTINENT STATES SHOW STEADILY DECLINING PRODUCTION

The combined production of the States of Kansas, Oklahoma, Texas, Arkansas and Louisiana for the month of October averaged 1,227,680 bbls. per day, which was 28,452 bbls. a day less than the average for the same States in September and 37,217 bbls. less than the average for August.

Oklahoma's average for October was 481,329 bbls., a decline of 12,739 bbls. as compared with September's average; Kansas 112,166 bbls., as against 113,109 bbls., a falling off of 933 bbls. a day. Texas's average was 367,043 bbls., a drop of 7,118 bbls., as compared with September. Arkansas produced 206,751 bbls., or 8,514 bbls. less than in September. Louisiana showed an increase, its average of 60,391 bbls. having been a gain of 962 bbls., which came altogether from the Gulf Coastal pools of the State.

Following are the figures for the five States:

SUMMARY OF PRODUCTION

	Daily Av. Barrels	Monthly Barrels
Kansas	112,166	3,477,146
Oklahoma	481,329	14,921,199
Texas	367,043	11,378,333
Arkansas	206,751	6,409,281
Louisiana	60,391	1,872,121
Total	1,227,680	38,058,080
Total September	1,256,132	37,683,960
Decrease	28,452	374,020

KANSAS

Daily average and monthly production in October.

	Daily Av. Barrels	Monthly Barrels
Marion County—		
Florence	912	28,272
Peabody	982	30,442
Covert-Sellers	2,298	71,238
Total	4,192	129,952
Butler County—		
Elbing	3,015	93,465
Potwin	708	21,948
Cameron-Robinson	635	19,685
Wilson-Dunkle	2,011	62,341
Towanda	2,983	92,473
El Dorado	6,807	211,017
Fox-Bush	2,160	66,960
Nuttle-Koogler	1,810	56,110
Smock	279	8,649
Leon-Weaver	773	23,963
North Augusta	1,101	34,131
South Augusta	2,119	65,689
Sluss	434	13,454
Douglass	137	4,247
Blankenship	948	29,388
Total	25,920	803,520
Greenwood-Woodson Counties—		
Sallyards	1,861	57,691
Teeter-Pixley-Scott	18,712	580,072
Virgil	4,799	148,769
Thrall-Burkett	5,815	180,265
Seely	9,320	288,920
Polhamus	3,111	96,441
Miscellaneous	238	7,378
Total	43,856	1,359,536
Cowley County—		
Rainbow Bend	10,409	322,679
Slick	1,949	60,419
Graham	2,240	69,440
Rock (Twp. 30-4)	480	14,880
Clark (Twp. 31-5)	322	9,982
Eastman (Twps. 30-6 and 31-6)	1,111	34,441
Winfield-New Salem (Twps. 32-4 and 32-5)	1,947	60,357
Miscellaneous	557	17,267
Total	19,015	589,465
Other Counties—		
Sumner	18	558
Rice	116	3,596
Russell	5,648	175,088
Harvey	55	1,705
Chautauqua	2,302	71,362
Elk	1,507	46,717
Wilson	361	11,191
Montgomery	2,995	92,845
Allen	875	27,125
Neosho	760	23,560
Lyon	158	4,898
Miami	484	15,004
Franklin	561	17,391
Douglass	44	1,364
Bourbon	33	1,023
Linn	335	10,385
Anderson	2,894	89,714
Labette	37	1,147
Total	19,183	594,673
Total October	112,166	3,477,146
Total September	113,109	3,393,270
Difference	933	83,876

OKLAHOMA

Daily Average and Total Monthly Production in October, 1925

	Dly. Av.	Monthly
Washington County	6,076	188,356
Nowata County	4,536	140,616
Rogers County	1,285	39,835
Osage and eastern Kay Counties—		
Burbank	50,657	1,570,367
Osage, outside Burbank	33,498	1,038,438
Total	84,155	2,608,805
Tulsa County—		
Bird Creek, Owasso, etc.	3,105	96,255
Red Fork, Sand Springs Bruner, Turkey Mtn. and Fisher	2,813	87,203
Bixby, Leonard and Jenks	1,407	43,617
Broken Arrow and Coweta	1,301	40,331
Total	8,626	267,406
Okmulgee-Muskogee Counties—		
Mounds, Beggs, Hamilton, Switch, Youngstown	9,992	309,752
Bald Hill and Haskell	3,615	112,065
Morris, Boynton and Cole	2,714	84,134
Okmulgee	2,461	76,291
Tiger Flats, Henryetta, and Schulter	2,816	87,296
Total	21,598	669,538
Okfuskee, Seminole and Hughes Counties—		
Deaner-Lyons	4,452	138,012
Wewoka	9,542	295,802
Cromwell	25,357	786,067
Papoose-Gilcrease	13,430	416,330
Okemah	207	6,417
Weleetka	1,720	53,320
Wetumka	86	2,666
Yeager	1,705	52,855
Total	56,499	1,751,469
Creek County—		
Cushing-Shamrock	22,049	683,519
Glenn Pool, Sapulpa and Kiefer	9,003	279,093
Bristow, Kellyville and Depew	26,017	806,527
North Bristow (Twp. 17-8)	2,960	91,760
East Bristow or Slick	6,706	207,886
Total	66,735	2,068,785
Pawnee County—		
Cleveland	4,196	130,076
Keystone	1,104	34,224
Jennings	5,906	183,086
Otoe or Watchorn	6,112	189,502
Ralston	110	3,410
Masham	380	11,780
Total	17,809	552,079
Yale, Quay and Ingalls	5,496	170,376
North Cushing or March	1,375	42,625
Deep Rock	440	13,640
Total	7,311	226,641
Lincoln County—		
Stroud	4,511	139,841
Davenport	15,689	486,359
Kendrick	1,156	35,836
Total	21,356	662,036
Kay, Grant and Noble Counties—		
Northwest Blackwell	735	22,785
Blackwell	1,761	54,591
Deer Creek	178	5,518
Ponca City	901	27,931
Mervine	372	11,532
South Braman	11,519	357,089
North Braman	1,874	58,094
Hubbard	2,295	71,145
Thomas	16,276	504,556
Tonkawa	46,673	1,446,863
Billings	384	11,904
Miscellaneous	125	3,875
Total	83,093	2,575,883
Garfield County—		
Garber	39,616	1,228,096
Carter County—		
Healdton	14,637	453,747
Hewitt	13,900	430,900
Graham	10,100	310,310
Fox	1,967	60,977
Brock	1,837	56,947
Tussy or Sholem Alechem	1,943	60,233
Total	44,294	1,373,114
Stephens-Cotton Counties—		
Loco-Milroy	2,278	70,618
Comanche	1,208	37,448
Duncan	6,466	200,446
Walters	959	29,109
Kilgore	170	5,270
Total	11,061	342,891
Jefferson County—		
Hambro (Twp. 6s-5w)	2,219	68,789
Caddo County—		
Cement	1,602	49,662
Garvin County—		
Robberson	2,903	89,993
Beckham County—		
Sayre	112	3,472
Pontotoc County—		
Allen	240	7,440
Pottawatomie County—		
Maud	50	1,550
Marshall County—		
Madill	153	4,742
Total October	481,329	14,921,199
Total September	494,168	14,825,040
Difference	12,739	96,159

NORTH AND CENTRAL TEXAS

Daily Average and Total Monthly Production in October, 1925

	Dly. Av.	Monthly
North Central Texas—		
Burkburnett	13,169	408,239
Electra	16,995	526,845
Iowa Park—K. M. A.	5,577	172,887
Archer County	32,638	1,011,778
Clay County	377	11,687
South Vernon	11,927	369,737
Montague County	607	18,817
Baylor County	366	11,345
Total	81,656	2,531,336
Central Texas—		
Clear Fork	6,759	209,529
Breckenridge	6,369	197,439
Caddo	4,206	130,386
Gunsight		
Ranger-Eastland	5,917	183,427
Rising Star	114	3,534
Sipe Springs	135	4,185
Desdemona	2,258	69,998
Pioneer	684	21,204
Brown County	2,114	65,534
Callahan County	3,767	116,777
Coleman County	329	10,199
Jack County	10	310
Palo Pinto County	616	19,096
Shackelford	2,565	79,515
Throckmorton	236	7,316
Reagan County (Big Lake)	31,233	968,223

(Continued on Page 130)

Unobstructed View of the Work

You can back right up to the well, facing it with unobstructed view of the work—and pull rods and tubing directly on the drum—no bull wheel necessary—a big saving in dollars and cents when you use a

Rock Island Model 70 Tractor Winch

This winch will pull 10,000 pounds on a single line. It will handle rods and tubing in any oil well, pull them slowly, stop at any point desired and then go on. Speed can be increased as load decreases.

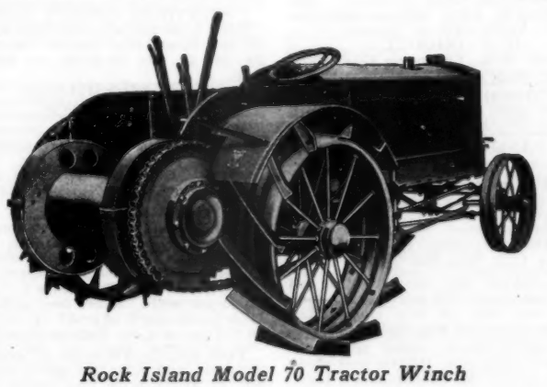
Drum and working lines inside derrick — operator and control mechanism outside, —powerful brakes—complete safety for operator.

Four-cylinder, heavy duty Waukesha motor with friction transmission; Dixie magneto with impulse starter; Stromberg carburetor; air cleaner; and ball and roller bearings. We also furnish the "Heider" Tractor Winch and Rock Island Pumping Units.

Ask our special representative

C. F. CAMP

Detroit and Archer Sts. Tulsa, Oklahoma



Rock Island Model 70 Tractor Winch

MANUFACTURED BY

ROCK ISLAND PLOW CO.

ROCK ISLAND, ILLINOIS

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

CREATE AND BUILD BUSINESS

MAIL your advertisement now. It will be published next week. Cash with order.

LEASES—PRODUCTION

IN ARTESIA, N. MEX., FIELD
Have few leases on structure, 1 to 5 miles McFrederick-Eppenauer deep test in 15-19-25. $5 to $25 per acre. This test 14 miles southwest main pool; in line production; Eddy County's best bet for extension; big companies in. Write or wire, Box 651, Carlsbad, N. Mex.

WORTH INVESTIGATION production and leases in western Kentucky. R. E. Cope, Box 489, Bowling Green, Ky.

OIL AND GAS LEASES
Marathon Fold—West Texas
30,000 acres Crockett County, large and small blocks; adjoining big companies; scattered wildcat. Also close-in adjoining World well block.
20,000 acres 10-year leases; low rentals; Terrell County, getting good play. Watch this county! Prices right.
Upton County. Scattered tracts.
60,000 acres one block, southeast Pecos County, on geological formation. Most attractive as to desirability, price and terms.
5,000 acres Irion County. Ten-year lease; watch the new work here.
7,000 acres Loving County. Ten-year lease; 10-cent rental. Right in line.
Write for prices and maps. Will allow time for geological inspection.
C. W. WEBSTER
W. T. Waggoner Bldg. Ft Worth, Tex.
Reference: Mercantile Agencies.

OIL LANDS

For Sale or Sub Lease

Mineral lease on 3,000 acres in Lake Bisteneau, Webster and Bienville Parishes.

Write

MAURICE J. MAYER, Owner
Third St. Baton Rouge, La.

FOR SALE—Oil and gas leases, settled production and leases partly developed. W. P. Harley, Bowling Green, Ky.

SUBSTANTIAL interest for finance to drill 50 acres joining production, Luling Field, two to three hundred bbls. at 2,200 feet; large company owns all adjoining acreage and is actively developing. Need help; let me send more detail. C. C. Bond, San Marcos, Tex.

SOUTHEAST NEW MEXICO
Can furnish practically proven leases in Artesia Field, Eddy County. Also other tracts in Eddy, Chaves, and Lea Counties. Particulars on request.
H. T. ORCUTT
816 Colcord Bldg., Oklahoma City, Okla.

WEST TEXAS Marathon Fold oil leases. Personal investments since 1919. Write for data and maps. Paul Konz, P. O. Box 291, Fort Worth, Tex.

FOR PANHANDLE oil leases and drilling contracts, write Dr. W. R. German, Canadian, Tex.

FOR SALE—Seven-eighths mineral fee 77,000 acres in one body, Starr County, Texas, $5 per acre. Near Jim Hogg Field. Very favorable. O. M. Kendall, P. O. Box 1325, Houston, Tex.

WILL GIVE deed to 40 acres and lease on balance of 312 acres to any man to drill one well on this land. Mrs. L. M. Roe, Lock box 295, Calico, Ark.

NEW TEN-YEAR lease. 337 acres less than 2 miles from Prairie well showing oil at 2,155. M. F. Beaumont, Hartley, Tex.

1,000 ACRES for an offset well. Free loan of casing. Virgin territory, 3 miles from production. About 1,100-foot drilling costing $2 per foot. Located in Warren County, Kentucky, northwest of Davenport Pool. Full information furnished responsible operators or companies. R. E. Cope, Box 489, Bowling Green, Ky.

I Have Sold it!

A user of The Classified Wants Section wrote:

"Please cancel my little ad on the Star Drill as I have sold it."

Through a small, inexpensive classified advertisement he sold a good drilling machine, benefiting himself and the buyer.

You, also, can use the classified section to advantage. Read it every week. Many bargains are listed in each issue.

If you want to buy or sell ANYTHING, place a small advertisement in the "Journal" classified section where it will get results for YOU.

The Oil and Gas Journal

Tulsa, Okla.

LEASES—PRODUCTION

CARTER COUNTY Sections one and two, 4 South, 2 West, 80 acres; new form 88-year lease, 5 years $10 per acre. J. B. Kathe, 2251 Forest St., Denver, Colo.

DRILLING BLOCK—Have desirable block oil leases covering 1,000 acres on carefully checked structure by well-known geologist. In producing trend of Grady County, Oklahoma. This county producing natural gas volume of around 2,000,000,000 cubic feet per day, being double any similar area in Mid-Continent. Oil usually found in proportion. Address Box 572, Chickasha, Okla.

OIL MEN, LISTEN
We need money for further development, we will sell a part of our East Cross Cut lease holdings at a bargain. Address Douglas Land Co., Cleburne, Tex.

OKLAHOMA
For sale—60 acres prospective oil land, 9 miles Ardmore, near Berwyn, Okla.; all tillable; fine for pecan orchard or dairy farm; $35 an acre. Jess Akers, Breckenridge, Tex.

STEPHENS COUNTY BLOCK
2,000 acres almost solid, titles approved, all new commercial leases. Sections 16, 20, 21, 22 and 28-2s-5w, at $6.50 per acre.
CLYDE MILLER
Duncan, Okla.

WE WILL give liberal interest in a 40-acre lease in Seminole County, Oklahoma, for test well or will sell. For full particulars address W. W. Warner, President, Conservative Oil Co., Nowata, Okla.

FOR SALE—Oil and gas lease, 320 acres, Marion County, Kansas. Southeast quarter of Section 25, Township 20, Range 3 and northeast quarter of Section 36, Township 20, Range 3. Close to producing wells. Other tests going down. How much am I offered? C. E. Storm, 2022 Denver Ave., Kansas City, Mo.

FOR SALE—346 acres oil land at $30 per acre; 186 acres not under lease; will sell at above price and retain one-half royalty. One mile of producing well. Address W. L. Rhoades, Route No. 4, Snyder, Tex.

FOR SALE in fee, 2,204 acres Southeast Archer. Small well on one tract, offset by a 20-bbl. well at 562. Price, $35 per acre in fee, the owner reserving one-fourth mineral.
STEHLIK & BABER
Wichita Falls, Tex.

LEASES—PRODUCTION

HAVE BUYERS for flush or settled production in Oklahoma and North Texas. Vern R. Hartman, P. O. Box 442, Dallas, Texas.

HAVE SEVERAL pieces of flush and settled production for sale in Oklahoma and Wichita Falls districts. Prices reasonable and terms can be arranged if necessary. P. O. Box 1144, Dallas, Tex.

170,000 ACRES
15-16 mineral fee, blocked solid, U. S. Geological Survey, on formation and structure, reports Permian exposure, dome structure. Shallow to Pennsylvanian. Very favorable to oil and gas production. Artesia, New Mexico, region, across the line in Texas. Price $510,000. P. O. Box 625, Dallas, Tex.

INFORMATION furnished on New Mexico by geologist working for large company. Also have offsets and close in acreage for sale. Write or wire Geologist. Box 593, Artesia, N. Mex.

MARATHON FOLD oil leases, close up, and surrounded by major companies. Quick sale, 10 to 40 acres only $5.00 per acre; half cash, balance in 30 and 60 days. Send remittance to cover amount you want, at once. Standard Development Co., Big Lake, Tex.

FOLLOW LEAD BIG COMPANIES
Several leases left near McFrederick-Eppenauer in 15-19-25, Eddy County, New Mexico, now drilling. Greatest wildcat play in Artesia Field. R. L. Holland, Box 102, Carlsbad, New Mex.

ROYALTIES—PRODUCTION

LEASES AND ROYALTIES — West Texas only. V. A. Thompson, Pecos, Tex.

HAVE READY market for producing royalties. No delay. A. K. Riley, P. O. Box 726, Tulsa, Okla.

J. F. MARION COMPANY
Magnolia Building
Dallas, Texas
Buys and Sells
Texas Royalties
"Ask Us First"

ROYALTIES—PRODUCTION

CHEAP OIL ROYALTIES
In various counties in Oklahoma in line of probable oil development. $2.50 to $6 an acre for ¼ perpetual royalty.
ELI D. BERNSTEIN
Oklahoma City, Okla.

FOR SALE—EQUIPMENT

PIPE—TUBING—CASING

FOR SALE—3,000 ft., 20-lb. 5-5/16-inch casing at 60 cents per ft. f.o.b. cars Muskogee. Good condition, casing run once. Muskogee Pipe & Supply Co., phone 1894, Muskogee, Okla.

FOR SALE—150 miles genuine wrought iron five-inch line pipe, fine condition. Tri-State Pipe Co., Box 282, Tulsa, Okla.

DRILLING OUTFITS

FOR SALE—Two No. 25 Stars, one with 26 engine, and one No. 26 Star, with 27 engine (made ten 1,200-foot wells) all three machines fully equipped with 6¼-inch to 8¼-inch tools, and 25 h.p. mounted boilers. Address H. C. Norris, Portland, Ind.

FOR SALE—One No. 27 Star drilling rig; No. 28 Star drilling rig; one generator; all above in good condition. Also 1,500 feet 4-inch pipe, been run once; 800 feet 6-inch pipe. Address H. B. Campbell Estate, Welch, Okla.

OIL COMPANIES, ATTENTION
For Sale—Complete drilling equipment for platting structures and wildcatting.
One Sullivan "N" Diamond Drill; 2,000 ft. "N" drill rods; 1,800 ft. "N" casing; 30 h.p. boiler, electric light plant and full equipment. Can be seen at work, Cumberland, Wyoming.
Two Sullivan "C" Drills, with 1,600 ft. "A" rods, boilers and full equipment; one drill mounted on truck.
One Sullivan "C.N." Drill complete, with 800 ft. of "N" rods; this drill also is mounted on truck.
All of these drills are fully equipped and in A-1 condition. Three of them can be seen at work.
EGILDSON BROTHERS CO., Inc.
509 Newhouse Bldg. Salt Lake City, Utah

OIL MEN
You can buy a good drilling machine with complete string of tools cheap, located at Farmington. Address Box 37, Farmington, New Mex.

MISCELLANEOUS

FOR SALE—Gasoline tractor cleaning out machine complete, wire line and sand line and string of tools. Price, $900. Box 466, Chanute, Kans.

FOR SALE

Model O Austin Trench Machine and Backfiller

L. W. KINNEAR, Inc.
1524 Clairmount Ave. Detroit, Mich.

FOR SALE—CHEAP

Steam Pumps

One Laidlaw-Dunn-Gordon horizontal duplex, compound condensing pump rated at 2½ million gallons every 24 hours. Sizes 14 and 26 by 15½ by 18. Wainright condenser, 600 square feet. Vacuum pump.
One Simple Duplex Blake pump, size 14x16x18.
Dismantling to install larger units.

CITY WATER CO. OF SEDALIA
Sedalia, Mo.

ELECTRIC MOTORS
Generators and Repairing
CENTRAL ELECTRIC CO.
712-714 N. Main Fort Worth, Tex.

FOR SALE—Two boilers 100 and 150 h.p., in good condition. Three condensor boxes 6x8x30. W. Bogart, Box 152, Burkburnett, Tex. Phone 136.

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

CREATE AND BUILD BUSINESS

MAIL your advertisement now. It will be published next week. Cash with order.

FOR SALE—EQUIPMENT

MISCELLANEOUS

CRAGO CUT GEARS
Worthy of your confidence. General machine work. 1416 Walnut, Kansas City, Mo. Phone Harrison 7660.

RECEIVERS SALE
Gas Properties and Equipment of the Independence Natural Gas Co.
15 small producing wells, pipe 6,000 ft. of 3-inch., 10,000 ft. of 2-in. and smaller, 4,000 ft. 5⅝-in. casing more or less, one 18x12 Bessemer compressor, one 35 h.p. gas engine, 50 met rs and regulators, one 50D Westcott Orifice meter, large water separator, other miscellaneous equipment. Sale at east door, Jackson County Court House, Independence, Mo., Tuesday, December 7, 1925, for cash to highest bidder.

OIL WELL MACHINERY
Fort Worth Well Machy. & Supply Co.
"Ft. Worth Spudders," portable drilling rigs, tools, cables and belts.
Engines, Brass Foundry
63 Jennings Fort Worth, Tex.

FOR SALE
One new 1,000-bbl. bolted steel tank, together with new steel for rack on which to mount same.
Two second-hand 1,000-bbl. bolted steel tanks, both in good condition. These tanks would all make good low five hundreds.
One 25 h.p. Olin gas engine, with push and pull power, belt, etc.
One 20 h.p. Bessemer gas engine with push and pull power, power house, belt, etc., both engines with Wico ignition.
VEEDER SUPPLY CO.
P. O. Box 144 Phone 32-A
Cherryvale, Kans.

STEEL

Piling
Bought and Sold
Largest Stock
Used and New

WALTER A. ZELNICKER SUPPLY CO.

St. Louis, Mo.

Pile Hammers, Rails, Locomotives, Cars, Pipe Tanks

ROTARY DEEP OIL WELL DRILLING BIT
Unbreakable, self-sharpening, continuous in drilling, cuts granite. full size; straight hole. 8-inch bit, $300. G. Griesche, Berkeley, Calif.

ENGINES—COMPRESSORS
TWO 150 h.p. Mietz & Weiss crude oil engines, with belt wheels and starting equipment; new, never in service; immediate delivery; bargains.
H. R. WILSON MACHINERY CO.
417 Pine St. St. Louis, Mo.

SCHOOLS

BOARDING SCHOOL FOR GIRLS—Elfindale in the Ozarks, conducted by Sisters of the Visitation, Springfield, Mo. Write for catalog.

POSITION WANTED

WANTED — Position as lease scout. Box B-41, The Oil and Gas Journal, Tulsa, Okla.

FIELD MANAGER who has had several years' experience in charge of drilling and production operations desires position. Have had considerable experience in the geological and petroleum engineering departments. Am graduate engineer; age 32; possessing excellent references. Box B-42, The Oil and Gas Journal, Tulsa, Okla.

REFINERY ENGINEER and chemist experienced in cracking plant design construction and operation. Box B-38, The Oil and Gas Journal, Tulsa, Okla.

GEOLOGIST — Experienced in Oklahoma; at present employed in Mexico; wishes position with company operating in United States. Box B-26, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

WANTED—A technical graduate in mechanical or mining engineering to work into a position in charge of mechanical and chemical problems for a financially sound oil company. Applicant must have at least six years experience since graduation, chiefly along mechanical lines, including three years contact and mechanical experience with oil field practices. Box B-30, The Oil and Gas Journal, Tulsa, Okla.

EXPERIENCED advertising man for retail oil business with headquarters Mexico City; thorough knowledge of Spanish necessary. Write stating references and salary expected. B-11, The Oil and Gas Journal. Tulsa, Okla.

EXECUTIVE, ENGINEERS, $3,000-$25,000, find our individual, confidential service effective in making new connections. Personally conducted by Mr. Jacob Penn, the eminent employment authority, known to leading business men throughout America. Not employment agency. Jacob Penn, Incorporated, 305 Broadway, New York City, N. Y.

WANTED

WANTED DRILLING PROPOSITIONS
Will drill test well on well located acreage with good geology. Submit with full particulars to Steiner Oil Co., 347 Harvey Snider Bldg., Wichita Falls, Tex.

WANTED RELIABLE CONTRACTOR
To drill for interest, two blocks, favorable geology. Rig, tools and casing furnished. Box B-40, The Oil and Gas Journal, Tulsa, Okla.

WANTED—Driller with portable rig who can and will take bottom hole money, 2,500-foot test south Caddo County. State price per foot, driller furnish everything. Box B-33, The Oil and Gas Journal, Tulsa, Okla.

WANTED—Practical man with $25,000 to start $1,000 per day net copper production. A. L. Jones, Brownwood, Tex.

WANTED—Oil and gas men to get interested in development for gas. Shallow drilling. Gas 35 cents M. at wells. Acreage now open for interested parties. Best of chances to make good. Location, Pennsylvania. Box B-1, The Oil and Gas Journal. Tulsa. Okla.

WANTED—To buy or develop shallow proven acreage, or buy producing royalties. Give full particulars on yield of wells, etc. Box B-37, The Oil and Gas Journal, Tulsa, Okla.

WANTED TO BUY—Small production or old leases ready to be abandoned. Unger Brothers, phone 1894, Muskogee, Okla.

WANTED
To buy from 50 to 100 bbls. production. Give full details. Box B-12, The Oil and Gas Journal. Tulsa, Okla.

WANTED—Producing ropalties Oklahoma and Kansas. Give full details. P. O. Box 502, Independence, Kans.

PATENTS

PATENT-SENSE — Valuable book (free) for inventors seeking largest deserved profits. References include prominent oil men. Write Lacey & Lacey, 718 F. St., Washington, D. C. Established 1869.

FOR SALE—REFINERIES

WONDERFUL OPPORTUNITY to buy or lease oil refinery. Write 17 Dunn, Great Falls, Mont.

INCORPORATIONS

CHARTERS—Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

DELAWARE incorporators. Charters fees small, forms. Charles G. Guyer, 901 Orange St., Wilmington, Del.

ADDRESSES WANTED

WANTED TO KNOW the present address of J. F. (Chick) Moody, inventor of automatic spider. W. H. Steigelman, Bellflower, Calif.

BUSINESS OPPORTUNITY

FOR SALE—Well logs, south Arkansas. Sullivan & Hollaway, 215 P. O. Bldg., El Dorado, Ark.

I OUGHT to be able to sell equipment through this section. It must bring good results, because it is filled with Classified Advertisements every week. Guess I'll try it.

INVESTORS, ATTENTION
Arkansas is a piece of gold. Hot Springs National Park is the mine. Better buy a small tract before the boom hits. Write today for information.
THE HAYS-BORDEN CO.
607-8-9 Citizens National Bank Bldg.
Hot Springs National Park, Ark.

G. T. KINSEY
Structural Geologist
Eureka, Greenwood County, Kansas.
Anticline. Specialty and saving production.
Specialty, wildcat field work, oil or gas preferences: 22 years' experience.

ADVERTISING RATES

	1 Time	2 Times	3 Times	1 Mo.
3 lines	1.05	1.80	2.55	3.30
4 lines	1.40	2.40	3.40	4.40
5 lines	1.75	3.00	4.25	5.50
6 lines	2.10	3.60	5.10	6.60
7 lines	2.45	4.20	5.95	7.70
8 lines	2.80	4.80	6.80	8.80
9 lines	3.15	5.40	7.65	9.90
10 lines	3.50	6.00	8.50	11.00

Compute white space at the above rates

Mail your advertisement to

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

DRILLING PROPOSITION
3,000 acres east of El Dorado, rig on ground set up and spudded in. Will give liberal interest for finishing well. Ruth S. Easley, 1301 Louisiana St., Little Rock, Ark.

STOCK SELLING

Corporations desiring capital for promotion, development or expansion are invited to communicate with the undersigned.

Courteous consideration; prompt action; established reputation, complete facilities for campaigns of any size.

WILLIAM R. THURSTON

33 West 42nd St. Telephone
New York City Longacre 4900

LOOK AND LISTEN, FOLKS
Do you know that the eyes of the world are on Florida today? Millions and millions of dollars coming daily. People from all parts of the United States and foreign countries are pouring in.
Florida has not been scratched yet. Better opportunities to make money than every before. Write us what kind of an investment you want and how much you want to invest. We will give you real service.
ROY BEERY & COMPANY
Office 522 Lake Ave. Lake Worth, Fla.

LOANS made on producing oil properties. Jo H. Cable, Petroleum Engineer, Mid-Continent Bldg., Tulsa, Okla. Phone 2-7962. Brown Bldg., Wichita Falls, Tex., Phone 7089.

BUSINESS OPPORTUNITY

MACHINE SHOP — Fully equipped, suitable for all kinds of oil field work and heavy forging. Bargain. Jack Dodson, Mexia, Tex.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 35 E. Tenth, Oklahoma City, Okla.

NEED CAPITAL?
Sell stock in your company quickly and economically. Worthy enterprises only.
NORTHCLIFFE CORP.
25 West 43rd St. New York, N. Y.

MAN OF MEANS to cooperate with and finance leasing or development for Texas geologist who has geology on several structures; formerly with U. S. Geological Survey. Box B-36, The Oil and Gas Journal. Tulsa, Okla.

NOTICE
You know that mineralogy is not new, but was not perfected until now. I can tell you the approximate depth and quantity of your oil or gas or salt water with my new system. Address John Henizman, Box 432, Muskogee, Okla.

FOR SALE—DOGS

SPANISH Fox Terrier pups for sale; natural ratters; keen hunters. Al Smith, Peoria, Kans.

SHOOTING DOGS
Let me send you one of my broken dogs for your quail hunt. Have two Setters and three Pointers broken all ways. I developed them and I know they are right. Choice $250.00. Will gladly tell you all about them. Have one unregistered dog good as above except no papers; $125.00 gets him.
J. J. HALE
Box 51 West Plains, Mo.

PUPPIES — White, pedigreed collie, registered, for sale reasonable. Ray Hicks. Benhams, Va.

POLICE PUPPIES — 3 months old, very fine specimens; excellent pedigree; prices reasonable. Write Bon-Air Kennels, R. R. 5, Box 136, Independence, Mo.

REGISTERED Fox Terrier puppies by imported sire. Hunters, ratters, companions. Wells Kennels, Farina, Ill.

DARE-DEVILS
Only absolute one-man dog. Fierce with strangers. Natural hunters, best guards, pals, playfellows for kiddies. Litter registered pups for sale. Imported champion at stud. Send for folder.
RED TOP KENNELS
Teague, Tex.

BEAUTIFUL registered bull pups; cheap. Tonn, 501 Rockwood, Dallas, Tex.

TRAINED STAG HOUNDS for sale, all guaranteed; also pups from a 32-inch sire. W. A. Carlisle, Cherokee, Okla.

COONHOUNDS and combination hunters for coon, skunk, squirrel, rabbit. Sent on trial. Walter Mullins, Covington, Tenn.

QUAIL HUNTERS — 7 months professionally trained English setter dog, sired by Donnetello; all papers. A real bird dog, none better. Will ship C.O.D., $125. Better wire. M. P. Thielen, Salina, Kans.

PATENT ATTORNEYS

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to anyone send for blank form
Evidence of Conception
Bulletin "How to Establish Your Rights" and complete information free.
LANCASTER & ALLWINE
240 Ouray B'dg. Washington, D. C.

MAIL LISTS

99% MAILING LISTS
Stockholders, investors, individuals, business firms for every need and want, guaranteed-reliable and individually compiled, so that every list is a fresh one. Standard charge $5 per thousand. There is no list we can't furnish, anywhere. Catalogue and information on request.
NATIONAL LIST CO.
22-A William St. Newark, N. J.

Additional Classified Want Advertisements on following page

CLASSIFIED WANTS

Continued From Preceding Page

ORCHARD AND FARM LANDS

STOCK FARM—640 acres, 200 cultivation, 300 more tillable, good terms. Box 356, Miles, Tex.

KANSAS RANCH for sale; 3,200 acres fine pasture land in Kansas Flint Hills at $36 per acre. $35,000 will handle for one year. No trades considered. Surrounded by tests for oil. J. E. Leader, Topeka, Kans.

FARM BULLETIN FREE

Containing description of many choice farm bargains, many fully equipped and possession given. Your opportunity to get a comfortable farm home with a steady income on most favorable terms is here. Write now to John D. Baker, DeQueen, Ark.

940 ACRES—Soil 20 feet deep; 700 cultivated; splendid improvements; 14 mules, 70 cattle, tractor, implements; farms 80 acres up, $25 to $50 acre; act quick. Sanderlin & Elliotte, Memphis, Tenn.

7,000 ACRES, 90 per cent tillable; $10,000 house, two sets improvements, water anywhere at 75 feet, 6 miles from Midland, splendid colonization proposition. Price, $12.50 per acre.

Any size farm or ranch, cheapest good land in Texas. B. W. Floyd, office over First National Bank, Midland, Tex.

WESTERN CATTLE RANCHES at less than liquidated prices. Range conditions better than for years. Industry picking up. Good investment. Paul Jette, Tularosa, New Mexico.

LETTERHEADS—PRINTING

CONSUMERS' LEDGERS

We are prepared to furnish from stock standard forms of gas meter Consumers' Ledgers. Sample forms and quotations on request. First class material and workmanship.

DERRICK PUBLISHING CO.
Oil City, Pa.

OIL FIELD LEGAL BLANKS—Leases, assignments, releases, township books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

FIVE MID-CONTINENT STATES SHOW DECLINE

(Continued from Page 127)

Mitchell County	2,559	79,329
Scurry	71	2,201
Total	69,942	2,168,202
Panhandle—		
Carson County	2,626	81,406
Hutchinson County	1,339	41,509
Wheeler County	84	2,604
Gray County	66	2,046
Potter County	23	713
Total	4,138	128,278
East Central Texas—		
Mexia	17,156	531,836
Powell	38,438	1,191,578
Currie	1,435	44,485
Richland	2,943	91,233
Wortham	18,482	572,942
Total	78,454	2,432,074
Total all fields, October	234,190	7,259,890
Total all fields, Sept.	238,897	7,166,910
Difference	4,707	82,980

NORTH LOUISIANA
Daily Average and Total Monthly Production in October, 1925

	Dly. Av.	Monthly
Bellevue	2,775	86,025
Caddo light	9,065	281,015
Caddo heavy	2,454	76,074
Cotton Valley	10,551	327,081
De Soto and Red River	4,154	128,774
Elm Grove	566	17,546
Haynesville	12,212	378,572
Homer	6,222	192,882
Total October	47,999	1,487,969
Total September	47,792	1,433,760
Difference	207	54,209

ARKANSAS
Daily Average and Total Monthly Production in October, 1925

	Dly. Av.	Monthly
El Dorado	8,480	262,880
Nevada County	1,370	42,470
Smackover, light	23,394	725,214
Smackover, heavy	171,754	5,324,374
Stephens	1,753	54,343
Total October	206,751	6,409,281
Total September	215,265	6,457,960
Difference	8,514	48,679

PUMP FOR NEW PIPE LINE

The Wilson-Snyder Manufacturing Co., Pittsburgh, Pa., has been awarded a contract for constructing 24 pipe line pumping engines to be installed in eight pumping stations which the Crusader Pipe Line Co. of Arkansas will build in connection with its new oil pipe line now being laid from the Smackover Field, near El Dorado, Ark., to the Mississippi River, near Munroe, La., a distance of approximately 150 miles.

W. J. NEUENSCHWANDER DIES AT SISTERSVILLE

W. J. Neuenschwander, widely known oil operator and natural gasoline manufacturer, died at his home, Sistersville, W. Va., November 15. Death was due to pneumonia following an illness of two weeks. He was born at Hannibal, Ohio, December 5, 1866, and had lived at Sistersville since 1890. He is survived by his wife and four children.

W. J. Neuenschwander

In addition to his varied business interests Mr. Neuenschwander was prominent in lodge and political circles of West Virginia. He was president of the Amity Gasoline Co., vice president of Frst Tyler Bank & Trust Co., vice president Cinco Oil Co., vice president Chestnut Oil Co., director Sistersville Tank & Boiler Works, treasurer Tyler Traction Co., treasurer The Wiser Oil Co., treasurer Petroleum Exploration and treasurer of the Columbia Oil Co. of West Virginia.

STANDARD-MAGNOLIA MERGER IS APPROVED

Merger of the Magnolia Petroleum Co. of Texas with the Standard Oil Co. of New York, involving physical property estimated at $300,000,000, was approved in Dallas by voting stockholders of the company.

Stockholders representing 533,258 shares of stock voted unanimously to approve the contract of November 6, previously made public, which transfers all assets of Magnolia to the Standard and dissolves the present Magnolia.

The name of Magnolia will be retained by the new corporation and it will have the same officers as the old company which was organized as a joint stock company in 1911.

Seventy per cent of the old Magnolia was owned by the Standard and other corporations but these corporations had no voting power in the company.

TEXAS CHARTERS

AUSTIN, Tex., Nov. 28.—Chartered: Houston Natural Gas Co., Houston capital stock 5,000 shares non-par, incorporators George Mackubin, L. S. Zimmerman and E. H. Buckner. Salado Oil Co. San Antonio, capital stock, $40,000; incorporators, John Bennett, George Maverick and E. B. Carruth.

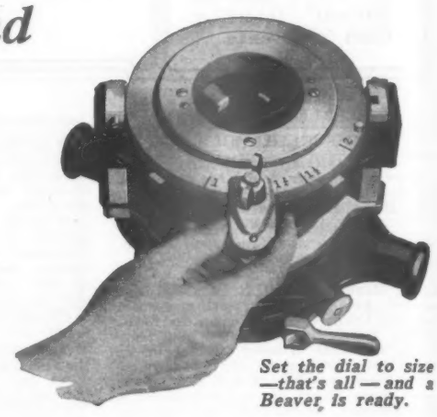
IT PAYS TO USE GOOD TOOLS

Easier and Quicker

How simple it is to thread different sizes of pipe with a Beaver Die Stock—Simply set the dial plate to size—that's all—and a Beaver is ready. No loose dies or bushings to hunt for, or change—for Beaver dies are always in the tool ready for use.

Why bother with loose parts—it's not only annoying but it takes time that should be used more profitably.

The way to stop this loose part bother is by using Beaver self-contained Die Stocks—sold by leading jobbers everywhere.



Set the dial to size—that's all—and a Beaver is ready.

THE BORDEN COMPANY
514 Dana Ave.
Warren, Ohio

BEAVER

GET YOUR COPY

The Pocket size Beaver catalog illustrates and describes the complete line of Beaver Die Stocks and Pipe Cutters—⅛ to 12 inches. Write for your copy.

Diamond Core Drilling

Improved gasoline-driven drills especially designed for oil structure work.

You can save money by using the Egildson method of core drilling. 15 years experience. For speedy, economical and reliable drilling, write or wire

Egildson Core Drilling Co.
Box 106 - - Coffeyville, Kansas

DEPENDABLE
OIL FIELD SPECIALTIES
THE FISHER GOVERNOR CO.
375 FISHER BUILDING
MARSHALLTOWN, IOWA

It belongs to you

Whenever you want to buy or sell anything use The Oil and Gas Journal Classified Wants Section.

It will help you!

New Monthly Record of Motor Car Output Is Made in October

WASHINGTON, D. C., Nov. 28.—October production of motor vehicles was 406,569 passenger cars and 45,823 trucks, of which 392,648 passenger cars and 44,129 trucks were produced in the United States and 13,921 passenger cars and 1,694 trucks were produced in Canada, according to the Department of Commerce. This establishes a new monthly record.

Production for the first 10 months of 1925 was 3,196,067 passenger cars and 422,587 trucks against 2,876,322 passenger cars and 321,897 trucks in the first 10 months of 1924. Total production in first 10 months was 3,618,654 against 3,640,108 in the entire 1924 year.

The following table compares monthly passenger car output since 1922, inclusive:

	1925	1924	1923	1922
Jan.	212,921	293,824	228,861	84,192
Feb.	252,803	343,460	260,325	112,756
March	332,154	357,045	327,046	157,842
April	331,302	346,405	351,628	202,567
May	382,714	386,324	358,667	238,463
June	364,806	225,079	344,001	268,501
July	358,554	244,544	303,516	228,457
August	221,831	255,232	318,857	252,796
Sept.	272,413	263,528	302 347	190,868
Oct.	406,569	260,881	338,481	219,921
Nov.	.....	204,343	228,810	217,955
Dec.	.....	182,099	279,862	210,692
Total	.....	3,262,764	3,702,391	2,385,010

The following table compares monthly commercial vehicle output since 1921:

	1925	1924	1923	1922
Jan.	28,141	30,741	20,510	10,000
Feb.	34,410	32,910	23,292	13,855
March	45,098	36,444	36,646	20,627
April	47,822	37,948	39,678	23,455
May	43,303	35,314	45,719	24,916
June	38,054	39,067	42,480	26,990
July	41,817	26,391	31,740	22,537
August	37,750	28,647	32,219	25,308
Sept.	60,368	31,960	29,651	19,933
Oct.	45,823	32,475	31 540	22,461
Nov.	.....	27,905	29,191	22,535
Dec.	.....	27,542	28,883	20,916
Total	.....	377,344	391,548	253,552

Figures for October are based on returns from 180 manufacturers, 71 making passenger cars and 126 making trucks (17 making both passenger cars and trucks). Data for earlier months includes 66 additional manufacturers now out of business.

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended November 21 totaled 659,000 bbls., a daily average of 94,143 bbls., against 123,000 bbls., a daily average of 17,571 bbls. for the week ended November 14, and a daily average of 65,429 bbls. for the four weeks ended November 21, as follows:

At Atlantic Coast Ports—	
Boston	69,000
New York	367,000
Philadelphia	90,000
Others	109,000
Total	635,000
Daily average	90,714
At Gulf Coast Ports—	
Tampa	24,000
Total	24,000
Daily average	3,429
Total Atlantic and Gulf Coast ports	659,000
Daily average	94,143
Daily average four weeks ended	65,429

Imports of crude and refined oils at the principal United States ports for the week ended November 21 totaled 1,005,000 bbls., a daily average of 143,571 bbls., compared with 929,000 bbls., a daily average of 132,714 bbls. for the week ended November 14, and a daily average of 162,893 bbls., for the four weeks ended November 21, as follows:

At Atlantic Coast Ports—	
Baltimore	130,000
New York	252,000
Philadelphia	59,000
Others	245,000
Total	686,000
Daily average	98,000
At Gulf Coast Ports—	
Galveston district	42,000
New Orleans and Baton Rouge	252,000
Port Arthur and Sabine district	25,000
Total	319,000
Daily average	45,571
At all United States Ports—	
Total	1,005,000
Daily average	143,571
Daily average four weeks ended	162,893

29,000,000 BARRELS PRODUCED BY ANGLO-PERSIAN IN FISCAL YEAR

LONDON, Nov. 21.—Sir Charles Greenway, Bart., chairman of the board of the Anglo-Persian Oil Co., at its general meeting held in Winchester House, reviewed the work of the company as a producer, refiner and marketer of oil for the past year. The chairman made it known that the year had been a successful one from a financial standpoint.

Speaking broadly, Sir Charles said of the future of the company's business that the consumption of the various products of oil kept pace with the production. He felt that any increase in the world's production in the year to come will be fully offset by the continuous expansion in the demand for oil products which must result from the improvement in economic conditions which is taking plac in practically every country in Europe.

"In any case," he said, "there will, I am confident, always be a remunerative outlet for all the oil of good quality which can, as in Persia, be produced at a low cost. These wells, I may add, are all connected with a central storage and pumping station at which at any time the flow from the wells can be varied to any degree required.

"I would again remind you that every drop of crude we produce is obtained from flowing wells of large caliber which, of course, means that it is raised with a minimum of cost," he said.

Fields and Production

Of the company's Persian holdings Sir Charles said:

"The productive area has now been extended along a line of strike running continuously 5 miles northwest and over 5 miles southeast of the well-known F.7.

"This famous well—which for a long time was regarded as our index of production and whole yield to date is 6,500,000 tons—is now eclipsed by a number of others. The well head fittings with which it was capped in 1909 are, however, in a dangerous condition; and since the well is situated near the most active and populated area of the field, it would be a serious matter were it to get out of control. Therefore, as the oil it produces can equally well be drawn off and with greater safety from adjacent new wells, quipped with modern high-pressure fittings, it is intended to close it down at an early date for the sake of the greater security that will thus be obtained.

"An important and comprehensive scheme has been adopted for recovery of petrol from the 50,000,000 feet, or more, of gas which come off daily with the oil from all parts of the main fields, only a portion of which has hitherto been utilized. The installation of the necessary plant is now well in hand, and there is every reason to hope that this scheme will considerably augment our production of petrol. All necessary field developments are steadily and punctually following the drill and I think it may fairly be claimed that our main fields are not only the largest and the most prolific, but also the best equipped, that the world can show.

"The wells drilled and coupled to the production lines are capable of yielding far more oil than could be dealt with at present by our existing pipe lines, refineries, tankers and marketing organizations. However, we can happily record a steady progress in all these complementary facilities, and in consequence, a correspondingly increased production.

To illustrate this, I cannot do better than continue the table of figures recorded at previous meetings, viz.:

1918-19 our production was 1,106,415 tons
1919-20 our production was 2,355,301 tons
1920-21 our production was 1,745,557 tons
1921-22 our production was 2,327,221 tons
1922-23 our production was 2,959,028 tons
1923-24 our production was 2,714,316 tons
1924-25 our production was 4,333,933 tons

The production given in tons represents an increase from approximately 7,412,980 bbls. in 1918-19 to (approximately) 29,037,351 bbls. in 1923-24.)

No New Producing Areas

"I am not able to record the discovery of any new areas elsewhere in Persia having prospects comparable with those of the present producing areas. The further examination of the strike of oil on Kishma Island was not sufficiently promising in quantity to warrant development under existing conditions and work in this area has therefore been discontinued.

"Similarly, oil has been discovered in yet another area in quantities which, had the field been situated in America or Europe, might have warranted commercial development. But situated as they are in Persia they could not be worked remuneratively and, therefore, operations in this area have also been suspended except in so far as they are necessary to produce oil for field use in some neighboring areas, where we are carrying on test drilling and in which we hope to find oil in larger volume.

"As a result of general geological survey work followed by an authoritative and comprehensive geological reconnaissance, no less than six new areas have been indicated as meriting immediate test with the drill, and the necessary work is well in hand.

"I have on previous occasions referred to a new area where the existence of appreciable supplies of oil had been definitely proved. This area, known as Naft Khana, is on the borders of Persia and Iraq, and is situated in what is known, so far as the Iraq portion is concerned, as 'the Transferred Territories.'

"This company possesses the oil rights in 'the Transferred Territories' by virtue of an international agreement executed in 1913, following on a rectification of frontiers. The agreement in question has since been ratified by the grant of the Iraq Government of a formal concession of these rights and a separate company with a capital of £1,000,000 is about to be registered to take over this concession.

"Drilling is steadily continuing in this field with the view of proving definitely the existence of oil to such an extent as would justify the cost of laying a pipe line linking the field with the seaboard. There is reason to hope that this may prove to be the case, but capital expenditure of the magnitude indicated will not be undertaken until its justification is fully established."

Refinery Throughput

The chairman said that the company's Argentine production for the fiscal year had been about 28,000 tons, approximately 1,876,000 bbls., and that it had gained a concession from the Government of Albania of 80,000 acres, on which no work had yet been done.

The company's throughput in its Abadan refinery had been 2,800,000 tons for the past year and through its Llandarcy refinery in Wales 914,250 tons and at Grangemouth, 263,000 tons.

The company distributes oil products in the United Kingdom, the Irish Free State, France, Belgium, Italy, Denmark, Norway and Australia.

ANOTHER NITRO VICTIM

BRADFORD, Pa., Nov. 28.—Nitroglycerin claimed its second Bradford victim within a month when Edwin D. Willibey, 30 years old, was blown to atoms in an explosion. The accident occurred in the canning house of the American Glycerin Co. at Howard Junction.

Willibey was working alone in the building at the time of the explosion. In the factory of the concern, nearby, Willibey's father, Martin Willibey, and another employe were at work. Neither was injured by the blast.

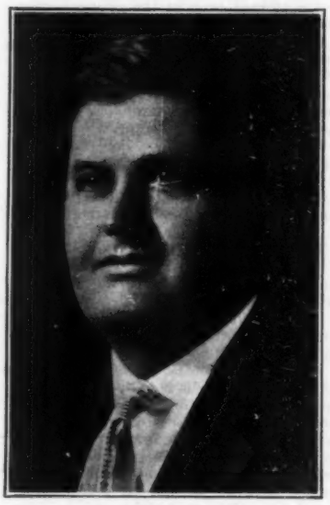
PIPE LINE CHARTER

AUSTIN, Tex., Nov. 30.—Magnolia Pipe Line Co., Dallas, capital stock $50,000; incorporators E. R. Brown, W. C. Proctor, F. C. Faulkner.

J. W. McCULLOCH BUYS RIVERLAND PRODUCTION

The entire producing properties of the Riverland Oil Co. of Tulsa, Okla., were purchased last week by J. W. McCulloch of Okmulgee, Okla. The daily production of these leases is approximately 900 bbls., and while the price was not revealed, it is reported to be around $900,000.

This is an added step towards the formation of a new oil company which will be known as J. W. McCulloch, Inc., and which will have its main offices in the new building which Mr. McCulloch is starting in Okmulgee. Since his resignation as vice president and general manager of the Independent Oil & Gas Co.



J. W. McCulloch

last April, Mr. McCulloch has been gathering prospective acreage, and now has assembled 30,000 acres of this sort of leases. He has conducted an aggressive campaign, and is interested in the development of seven large blocks of acreage in territory which is considered favorable to oil production.

Recently he and some associates completed a well in the south end of Lyon County, Kansas, which is producing 500 bbls. daily. The well is five weeks old, and a private pipe line has been built to it and the production is being shipped to a railroad company for use as fuel oil. The low gravity of the oil caused the pipe line companies to assume a reluctant attitude toward connecting with this well. Like all fields of low gravity oil, it has its troubles at the outset. The Smackover Field in Arkansas experienced the same difficulty in the early stages of its development, but when the daily production assumed more pretentious figures, the pipe lines entered the scene. The Lyon County well is more or less an unknown quantity as far as geological knowledge is concerned, but the splendid performance of it will very likely result in a drilling campaign, which may bring good returns to the operators.

The Independent Oil & Gas Co. enjoyed the splendid and prosperous growth that has been its portion under the management of E. M. Moore and J. W. McCulloch whose keen business acumen guided it through the perilous times of 1921 and established it as one of the best companies in the Mid-Continent Field.

The producing properties of the Riverland Oil Co. are scattered through Oklahoma. They comprise a full interest in 320 acres in the Riverland Pool south of Sand Springs in Tulsa County, a half interest in 300 acres in southern Osage County, and a three-quarter interest in 80 acres in the Mounds Field, Okmulgee County.

ROCKY MOUNTAIN AREA

(Continued from Page 46)

line, which was handled by the May Tank Co., will be in charge of Robert Young.

Ship Oil From LaBarge

The LaBarge Field in southwestern Wyoming started its first shipment of crude from that field the past week. Six trucks are hauling an average of 300 bbls. daily from the storage in the field to the Oregon Short Line Railroad at Susie, where the oil is placed on tank cars and then shipped to Salt Lake City, to the plant of the Utah Oil & Refining Co. for treatment.

The trucks load by gravity at the tanks in the field; reaching the railroad at Susie, a gravity line has been laid to the highway with auxiliary steam line beside it for heating, the trucks make connection with the line and deliver the contents of the truck tanks by gravity to the storage tank at the railroad, then the oil is placed in the cars by pumping.

If these six trucks are found inadequate to carry the production, four more will be started on the route and provision has been made to keep the road clear of snow during the winter months so that the trucks will not be stopped from this cause. The road in the field has been graded and built to stand travel and the experiment has had a good start. It remains to be seen whether this mode of carrying crude can compete with the cost of transportation by pipe line.

The operators in the LaBarge Field, in view of the means of transporting their oil from the field to the railroad, have decided upon a winter campaign of development and are making preparations to drill all winter long. The oil is found from 900 to 1,400 feet deep and it comes from the Tertiary beds. It is thought that there is a fault plane which has permitted the oil to come up from deep sands of the Cretaceous below the Tertiary and in its upward migration the oil has filtered itself somewhat. The LaBarge crude is a light grade, with a gravity between 45 and 50 degrees and is red in transmitted light and a light green in reflected light. In laboratory tests, the crude shows a very small residue, almost all of it refining to marketable products.

The distance from the field to the railroad is about 45 miles by the road the trucks will haul and the trucks expect to make two trips daily. The airline distance from the field to the railroad is about 22 miles and there is some talk of a pipe line being laid, the permit for same having been filed at Cheyenne.

Runs for the Week

Salt Creek	58,800
Teapot	1,710
Big Muddy	3,310
Grass Creek	2,760
Elk Basin	740
Greybull	20
Rock River	3,180
Lance Creek	840
Poison Spider	890
Osage	340
Hamilton Dome	480
Lander Fields	250
Byron	50
Pilot Butte	60
Lost Soldier	3,920
Ferris	100
LaBarge	150
Cat Creek	3,310
Sunburst	12,666
Hogback	520
Moffat	2,790
Florence	320
Fort Collins	1,840
Rattlesnake	360
Boulder	25
Rangeley	100
Tow Creek	70
Artesia	4,710
Total	104,321

Notches, Rex Lake and Mule Creek are shut in and no production is being taken.

DAVENPORT FIELD HAS UNIQUE CHARACTERISTICS

(Continued from Page 23)

low the top of the Oswego, and above the lower Oswego lime. This sand is of Pennsylvanian age. The very good body of sand that is found throughout the pool is one of the reasons of its good productivity, for an average of 75 feet of sand is uncovered by the drill. The greatest body of sand that appears in the pool is 108 feet, and during the past week one of the north wells drilled through the sand and found only 21 feet.

No Dry Holes Drilled

Although no dry holes have been drilled in the field, some very light wells have been found particularly in the southwest portion of the pool. The recent discovery of a 1,000-bbl. well on the Prairie Oil & Gas Co.'s lease has given a fresh impetus to drilling activity in that portion of the field, and as a result there have been several new wells started in Sections 4 and 33. The well having the greatest initial production of the pool to date was the Magnolia Petroleum Co.'s No. 1 A. Sukavoty in the northwest corner of the southwest quarter of the northwest quarter of Section 2-14-5. This well found the Prue sand with 10,000,000 feet of gas and an initial production of 2,250 bbls. of oil daily. Since the Magnolia Petroleum Co. has made a huge investment in the field it is only natural that they should be entitled to the lion's share of the production, although this condition does not always follow. The Magnolia Petroleum Co. has always been a consistent believer in the possibilities of the Pavenport Pool, and were instrumental in its development from the start. The discovery well was drilled on acreage contributed by them as related above, and ever since that time they have repeatedly invested in holdings on every side of the field.

A novel feature of this field is that one offset to the producing well was owned by a major oil company and was sold after a good producer had been completed across the line. The discovery well was drilled in the southwest corner of the southeast quarter of Section 34-15-5, and the oil and gas lease on the south half of the southwest quarter of this same section was owned by the Mid-Continent Petroleum Co., (at that time operating as Cosden & Co.) The latter company was not very enthusiastic over the prospects even after a well was completed, and its lack of faith is illustrated by the fact that it sold the adjoining lease to the Magnolia Petroleum Co. for $145,000. The Magnolia has extended its holdings in every direction from production in this field, and a short time ago when production was extended towards the north it purchased the south half of the northeast quarter of Section 34-15-5, (a lease that is half a mile north of the discovery well), for $75,000. The original development was conducted to the south of the discovery well, and it is recently that the north end of the pool is becoming interesting. The same holds true of the west side, and for one year, the territory south and east of the discovery well was played heavily.

For their persistence in developing Davenport, Morgan & Flynn have been substantially rewarded, and their sales of acreage to the Magnolia Co. and others have yielded them $400,000. They still have very good royalty holdings in this region which give them a healthy income.

The field may still have great possibilities in the Wilcox sand, a formation still deeper than the Prue which is now producing. The dry hole drilled in the southeast corner of Section 2-14-5 had a very light showing in the Prue sand, but in the Wilcox, it has a splendid showing which may result in some production being found in this horizon.

The field is rich in casinghead gasoline content, and the three plants of this character which are now operating in the field are showing a very good return. The Skelly Oil Co., the Magnolia Petroleum Co. and the Victor Gasoline Co. have plants in this field.

Like all oil fields, of course, Davenport must ultimately have its producing area defined, and its day must eventually pass. The quiet progress that has been its portion has failed to cause the excitement and rush that generally marks the opening up of a new field. Davenport has labored under difficulties since the original well was started, but those companies and individuals who have exhibited their faith in it will be amply rewarded.

CALIFORNIA REFINERY OPERATIONS IN OCTOBER

(Continued from Page 30)

ing all grades of fuel oil, increased 1,825,205 bbls. and at the end of the month amounted to 81,484,776 bbls.

Lubricants

Production of lubricants during October was 7,580,909 gallons, a decrease of 1,100,907 gallons under September output. Stocks increased 1,581,737 gallons to 36,802,056 gallons.

Refinable Crude

Stocks of refinable crude increased 1,020,387 bbls. and at the end of the month amounted to 81,484,776 bbls.

Refinery Operations

Commodity—	Oils Run To Stills Barrels
Crude	17,300,025
Unfinished oils rerun, tops	Net
Other oil	Net
Natural gas gasoline blended at refineries	380,465
Total in barrels of 42 gallons	17,680,490

Commodity— Gasoline—	Ref. Output
Cracking or synthetic, gallons	348,677
Other than cracking, gallons	158,808,294
Engine distillate, gallons	2,828,848
Kerosene, gallons	23,983,518
Gas oils, fuel oils and residuum, gallons	510,766,808
Lubricants, gallons	7,580,909
Wax, pounds	114,178
Asphalt, tons	52,172
All other finished products, gallons	3,922,426
Unfinished oils produced—	
Tops, gallons	Net 4,727,571
Other oil, gallons	Net 8,804,820
Shortage, barrels	204,465

Natural Gas Gasoline Production and Distribution

Type of Plant—	Gas Treated 1,000 Cu. Ft.	Nat. Gas Gasoline Produced	Gasoline Rec'v'y M C F Gas Treated
Oil absorption	10,073,718	11,659,328 Gals.	1.157 Gals.
Compressor	353,925	509,338 Gals.	1.439 Gals.
Combination Comp. and oil absp.	8,842,256	12,315,693 Gals.	1.393 Gals.
Combination oil and charcoal absp.	2,375,004	3,562,532 Gals.	1.500 Gals.
Prip	.....	18,365 Gals.	....
Totals	21,644,903	28,065,256 Gals.	1.297 Gals.
Natural gas gasoline distribution—			
Stocks first of month	.....	.....	120,125 Bbls.
Production during month	.....	.....	668,220 Bbls.
Quantity mixed with crude or unfinished oils	.....	228,083 Bbls.	.....
Used in blending at refineries	.....	380,465 Bbls.	.....
Stocks end of month	.....	74,849 Bbls.	.....
Used at plants, shortage and evaporation losses	.....	14,364 Bbls.	.....
*Balance	.....	89,584 Bbls.	.....
Totals	.....	788,345 Bbls.	788,345 Bbls.
Finished gasoline produced at plants	.....	324,528 Gals.	.....
Stocks natural gas gasoline held by natural gas gasoline plant operators	.....	1,067,075 Gals.	25,407 Bbls.
Stocks natural gas gasoline held by refiners	.....	2,076,564 Gals.	49,442 Bbls.
Total stocks natural gas gasoline	.....	3,143,639 Gals.	74,849 Bbls.
Stocks finished gasoline (motor fuel) held by natural gas gasoline operators	.....	24,588 Gals.	.....

*Disposition of this balance was not accounted for in the reports received. It is presumed to have been disposed of to blenders and refiners who are not at present reporting to the Bureau of Mines.

Petroleum Stocks of California Refinery and Natural Gas Gasoline Plant Operators on the Pacific Coast of North and South America and Hawaii.

	In United States	Outside U. S. Including Alaska and Hawaii	Total Stocks
Refinable crude, 20° and above	43,773,336 Bbls.	16,600 Bbls.	43,789,936 Bbls.
Heavy crude below 20°, including all grades of fuel oil	80,595,656 Bbls.	889,120 Bbls.	81,484,776 Bbls.
Natural gas gasoline	74,849 Bbls.	.....	74,849 Bbls.
Gasoline	387,405,942 Gals.	8,135,542 Gals.	395,541,484 Gals.
Engine distillate	20,271,364 Gals.	1,901,841 Gals.	22,173,205 Gals.
Kerosene	69,149,149 Gals.	2,788,437 Gals.	71,937,586 Gals.
Lubricants	37,424,204 Gals.	1,047,679 Gals.	36,802,056 Gals.
Wax	166,540 Lbs.	.....	166,540 Lbs.
Asphalt	25,640 Tons	250 Tons	25,890 Tons
All other finished products	7,506,021 Gals.	118,728 Gals.	7,624,749 Gals.
Unfinished oils—			
Tops	266,350,212 Gals.	.....	266,350,212 Gals.
Other oil	296,762,814 Gals.	163,548 Gals.	296,926,362 Gals.

Charles D. Wagner Powerful Factor in Emsco Organization

Charles D. Wagner, who has gone to the new Emsco Derrick & Equipment Co., a merger of the Emsco Steel Products Co. and the Emsco Tool Co., Los Angeles, Cal., as third vice president in charge of sales, was formerly sales manager of the Axelson Machine Co. for a period of four years, and is considered

Charles D. Wagner

to be one of the most capable sales executives in the country. Mr. Wagner has been actively connected with the oil industry for approximately 20 years, during which time he has served as a sales manager for some of the largest companies and has an enviable record as an organizer and producer of sales in tremendous volume. He enjoys a wide personal acquaintance in all fields and has the happy faculty of instilling that brand of enthusiasm into his men that insures his company going over the top in a big way.

SOVIET OIL IN TURKEY

The Wall Street Journal's London correspondent cables: Soviet Oil Co. has made the Turkish Government an offer to undercut prices at which any other companies offer oil and is seeking a monopoly of the Turkish market, Turkish officials state to Dow, Jones & Co. The Turks are already buying considerable Russian oil and negotiating for concessions and it is thought likely a large part of the Turkish oil business will go to Russia.

The Russians have told Dow, Jones & Co. that they made the Turkish Government an attractive offer for the entire kerosene trade in Turkey.

Classifying Methods of Oil Discovery

Credit for Geologic and Non-Geologic Discoveries Cannot Be Given Arbitrarily, as so Many Initial Tests Show a Dovetailing of Effort

By Jon A. Udden
Tulsa, Okla.

An attempt at a classification of petroleum deposits according to how they have been discovered is unusual, but nevertheless perhaps interesting. The occasion for this paper is a classification proposed by Dr. C. N. Gould. The proposal of a classification, whether geologic or nongeologic appeared to me, at first, as being an attempt at a justification of the purely technically trained man.

In attempting to classify circumstances responsible for the discovery of various "oil fields" or "pools," geologic or nongeologic, consideration must be given to a human being, namely, man. The element man can be grouped as to developed intelligence into two divisions, the one group consisting of those who have a technical foundation and training and the other group lacking the scholastic training, but often having much practical experience. Both groups by application have developed the sense of comparison and inference.

A strictly geological discovery may have come about as a result of a few or of a number of geological conditions familiar to the profession. Claim for individual recognition, on the part of a geologist, for the discovery of an area of production would necessitate evidence showing that the discovery was based on an interpretation resulting from information of the following character:

A knowledge of regional conditions or a knowledge of specific local conditions as to surface structure or subsurface structure and sedimentary conditions.

In presenting a classification, if intended for the public, due credit should be given to those whose aim is strictly a geologic interpretation and also to those who have reasoned along the very simplest geological lines. If a classification is to be attempted it should be specific. I can best illustrate my point by concrete examples, which may serve as a suggestion.

The Big Lake Pool in Reagan County, Texas, is an example in the first place of an interpretation of a regional geologic problem. The regional aspect is based on the location of the axis of the Marathon fold. This was called to the public's attention by the Bureau of Economic Geology and Technology of the University of Texas long before any actual development. The actual discovery of the oil in the area in which it was found cannot be attached to any specific report on the immediate territory. The discovery of oil must be credited to the venturesome wildcatter, who saw in this instance principally a large block of land covered by a single lease. Further in this case the particular block of land was selected, because of its location near the supposed trend of the fold mentioned.

Here, then, the classification may be made thus:

General regional geologic interpretation, Big Lake Pool.
Specific geologic recommendation, none.
Wildcat drilling venture, Big Lake Pool.

Let us then consider the Westbrook Pool in Mitchell County, Texas. At the time this test was started no definite geologic evidence of a favorable regional situation was known. Direct and specific information with reference to the surface geology in and around the area of the proposed test at the time the drilling was started, was lacking. Nevertheless the venturesome spirit of the "wildcatter" on a large block of acreage prevailed. The result was a small producer in an upper horizon and at a later date in a lower horizon. So here the case was as below:

General regional geologic interpretation, none.
Specific geologic recommendation, none.
Wildcat drilling venture, Westbrook Pool.

Claims to recognition in the discovery of new "oil fields" or "pools" by the nontechnically trained group are, of course, based on more simple grounds. Geographical similarities are sometimes taken into consideration. They have a method of making inferences from comparisons. It is not unusual for this group to compare the lay of the surrocks in a new region to that in a known producing area. They make comparisons of the results of drilling, knowing certain horizons to be more or less constant. They often make use of relative elevations of tests that have been drilled and in their way correlate horizons and infer that such and such a condition might exist.

But the methods employed by the two groups are in many ways similar. Their interpretations may differ. One group is schooled in the theory, the other in actual experience.

Can such a broad classification as a geologic or a nongeologic discovery be established? Many geologists would claim credit for all of the development on a plea that success has attended venture made in places where regional geologic conditions were known to be favorable. The trite expression has often been heard, after production has been obtained in some new place, that the geologists regarded the "region as a territory worth considering."

Again, have not a number of fields been discovered by persons who have been solely interested in the results of actual drilling? For instance, by comparison of this sand with that sand, this lime with that limestone, from relative elevations of wells, drillers, contractors and other non-technical men may have concluded that another test was justified. This character of conclusions may have led to the opening up of new territory. This is also geology, although the underlying principles of geology may not be fully understood. Have not even competent geologists resorted to this mode of attack where there has been but little other geologic information available?

To attribute all of the development in the Ranger Pool, Eastland County, Texas, that followed the original discovery well, namely, the McClesky test, "without geology" would hardly be fair to either the geologist or the wildcatter. The original McClesky test would have to be credited in the following manner:

General regional geologic interpretation, none.
Specific geologic recommendation, none.
Wildcat drilling venture, McClesky test.

Subsequent developments in many instances, and likewise failures, no doubt, can be attributed to specific recommendations. It would be a big task to trace the actual history of the initial well development in the numerous pools that have been discovered. I have in mind an instance in my own experience in Young County, Texas, when associated with the geological department of the Sinclair Oil & Gas Co. The geological department detailed a certain area in which the company held some leases that would soon expire. A favorable structural condition was found, the regional geology was favorable, sedimentation conditions, especially relating to the producing sands, were known to be erratic, as indicated by previous drilling in the area. A favorable recommendation was made. The result was the completion of one of the outstanding wells in Young County. In other words, this test turned out to be a perfect geologic interpretation. This example might be classified as follows:

General regional geologic interpretation, Moran production.
Specific geologic recommendation, Moran production.
Specific sedimentation recommendation, doubtful.
Wildcat drilling venture, none.

A combination of efforts might be considered. If my recollection serves me rightly, the Luling Field, in so far as the first two or three tests were concerned were the efforts primarily of wildcat drilling. As far as I know there were no specific recommendations. However, regionally it was considered as territory worthy of consideration and drilling in so far as the Taylor-Navarro group of sediments were concerned. This inference was made from the development to the south of San Antonio, in Bexar County, Texas. Geology became important in this area when it was observed that there existed some faulting. A comparison with conditions in the vicinity of Mexia was made. Later on it was determined that the production was being obtained from a horizon entirely new to Texas, namely, from the Edwards limestone, Comanchean Cretaceous. Closer observations were made and new light was thrown on the manner in which accumulation had taken place and the probable causes for the accumulation. My inclination in this instance would be to credit wildcatting with the original discovery of the possibility of production and subsequent successful development to geology and engineering.

Another example of which I am familiar and which can be analyzed is in Township 1 North, Ranges 8 and 9 West, Stephens County, Oklahoma. The original Parson-Gant test in Section 32, Township 1 North, Range 8 West, came in as a gas well. This gas well was the forerunner of some very intensive drilling. My impression is that the geologists considered the area regionally prospective, but the original test was not drilled on any specific recommendations. Further, the region was one in which geologists believed that sedimentation was erratic so far as sand conditions were concerned. The original test would have to be credited to wildcat drilling venture.

There is still another phase in the whole situation that must be considered if a classification is attempted, namely, where shallow production is known, but conditions below developed production is not known. This side of the question can also best be illustrated by a few examples.

The situation in the Tonkawa Pool, in Kay and Noble Counties, Oklahoma, might serve as an example. It can be said at the outset that the area regionally was recommended*. Specific recommendations were doubtful. §This is very aptly illustrated by the character of the geological map ‡which was prepared previous to the drilling of the successful test, the school land No. 1 in the northeast corner of Section 16, Township 24 North, Range 1 West. It is a moral certainty that no specific recommendation could have been made on the surface geology. It is equally true that without the information available from the tests that had been drilled in the general vicinity, starting as early as 1918, that it would have been impossible to construct even a map with hypothetical contours. This early drilling, coupled with the surface geology available, indicated the possible occurrence of a structural feature in the area. With the drilling of the successful well additional information became available. The drilling that followed kept establishing with greater certainty the position of the expected production. It is very probable that the actual discovery well of the area as a whole, in so far as it is considered one structure, would have to be the first producing well completed at the extreme southwest end of the general structure. This probably represents the conditions so far as the upper pay horizons were concerned.

What could be expected at a greater depth? †There were diverse opinions, but I dare say none was too optimistic about deeper production. **It was through the efforts of T. B. Slick, who on his lease decided to explore, or in other words, wildcat in a proven territory for deeper production. The result was the opening up of an unusually productive horizon. Here then you might consider a dual relation. The success of the new development must be credited to wildcat drilling venture in an area of developed production.

Again the so-called Turkey Mountain, Country Club or Hominy production has proven elusive to both geologists and wildcatters. There is no question but that the finding of a large number of the productive areas are due entirely to the efforts of the geologists and again a fair number can be enumerated to the credit of others than geologists. The most striking one being that of West, Smith & Obins in Section 1, Township 18 North, Range 12 East. Shallow production had been known for a long time, but no venture had ever been made towards obtaining deeper production. Before abandoning the lease a well was drilled to a greater depth than any of the previous attempts. In this instance the wildcatter in shallow territory was rewarded.

A great number of other illustrations could be cited, but I believe that these will suffice to bring out my point about distributing the credit for the initial venture in oil finding. A classification of all successful ventures would involve the history of the initial test. The classification could not be arbitrarily geologic and nongeologic. In many instances the initial test history would show a dovetailing of the efforts of the two groups of searchers for new petroleum deposits.

In conclusion, when a problem of this nature is attempted and placed before the public consisting of drillers, contractors, non-technical men, students and technical men, who are interested in the problem of obtaining production the idea should prevail that:

Each group has its own way of interpreting data
Both wildcatters and geologists have achieved success and likewise failures.
The future calls for a combination of all efforts.
Success demands harmony between the two groups.
Classification of efforts never did produce petroleum and never will.
Competition is one cause of successes registered.

*Oklahoma Geol. Surv., Bull. No. 19, pp. 342-344 and map, plate XXVIII, April, 1917.
§P. 272 under title "Structure," Bull. Amer. Asso. Petrol. Geol., Vol. 8, No. 3, 1924.
‡P. 273, Bull. Amer. Asso. Petrol. Geol., Vol. 8, No. 3, 1924.
†P. 281, Bull. Amer. Asso. Petrol. Geol., Vol. 8. No. 3, 1924.
**P. 291, Footnote by "Editor," same as above.

Our Service Put the Fakers Out of Business

Those notorious old gentlemen with their kerosene torches—their one-piece brass bands—and their wonderful yarns about the world's greatest remedy and cure for all the known ailments and any that they could imagine. Each night would see them in a new town with more "cure-all" or whatever else it was they were peddling.

The point is this, that they never went back to the same town and the same people twice. Their idea was to sell once—get the money—and get away before anyone had a chance to test the merits of the merchandise.

It was a great game while it lasted. They would make their goods in their wagons during the day and sell them that night. They were free from competition because no manufacturer could afford to spare the time for travel or the men to see the dealers in these small, scattered towns. But then came the jobbers—and when the jobbers came in, the fakers went out.

Here was a helping hand for the manufacturers. It was a helping hand which lifted the distribution burden from the manufacturers' shoulders.

In the oil business, the Acme Petroleum Company does the same work. It obtains the different kinds of oils from the different, variously located refineries. These oils are stored in storage tanks, and the oil retailers have one central source of supply for all their needs.

The user of oil in Colorado—and the user of oil in Florida is served equally well.

Acme service is well worth your while, either as a refiner or a user of oil. Fleets of tank cars are ready to fill your assorted orders. Try this service today.

(This is the forty-second of a series of informatory advertisements on the distribution problems with which the oil industry has to contend).

ACME

Petroleum Company

Executive Offices: 624 S. Michigan Ave., Chicago

KANSAS CITY, MO. Land Bank Bldg

DALLAS, TEXAS Magnolia Bldg.

OIL STORAGE PLANTS

Over 7,000,000 Gallons Storage

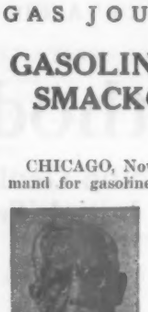
West Tulsa, Okla. Riverdale, Ill.

(*Chicago Switching District*)

GASOLINES FIRM IN CHICAGO AREA; SMACKOVER MAIN FACTOR IN FUEL OIL

By J. B. Waldo

CHICAGO, Nov. 28.—Although the demand for gasoline is only seasonably active, yet this market is very firm with practically all of the lower-cost November purchases disposed of and the market more nearly based on the refinery costs than it has been during the current month. This applies to practically all products from gasoline to fuel oil, with the single exception of Smackover, which continues to be pressed for sale. The territory has enjoyed a couple of weeks of fine weather, clear and, neither too warm nor too cool, just good Indian summer weather, and this has stimulated the consumption of gasoline to some degree. At least there has been larger buying by the jobbers in the spot market. Any leftovers of gasoline bought for November have been cleaned up and today this is practically a one-priced market so far as U. S. Motor gasoline is the subject of quotations.



The demand is for the U. S. Motor and the higher gravities and if the cold wave that is promised for the next couple of days keeps its appointment, there will be an increase in the demand for the latter which may not be so easy to fill. Shipments of these higher gravities are slow and many refiners state that their capacity is engaged for some time ahead on export orders. Others allege a lack of cars to account for the slow deliveries. There has been considerable hunting around for cars rolling, or on which prompt deliveries could be assured in the higher tests, with poor results as a rule.

Gasoline Contracts

There is a good deal of debate regarding the making of contracts for next season. Some of the large jobbers have not been satisfied with the margins offered and have held back from signing up for the coming year, and this has led the marketers who do not specialize on contracts to believe that the next year will be a better one in the spot market. Others claim that the refiners have met the issue by offering a wider margin and the statement is current that the original margins have been widened by 1 cent and that a minimum of 4½ cents and a maximum of 5½ cents is readily obtainable on the new form of contracts. One quite large distributor stated that his present source of supply came to them with a 3½-cent margin. He held out until he received an offer of a 6-cent margin. Then he made a counter proposition and expects to land a nice contract. If all these stories be true, and the last one is, the margins to good buyers are not so greatly different from last year. Of course there are none of the 5 to 7 cents below the tank wagon market being even talked of but a 4½ to 5½-cent below the service station price for gasoline laid down at the station is quite in line with the jobbers' views as expressed earlier in the season.

Prospects for 1926

Of course everybody expects a big volume of business in 1926, yet there are some who are classed as expert oil men who do not believe that the consumption of gasoline will greatly exceed that of 1925, and even venture the opinion that 1926 may prove to be the peak year. They base their views on some remarkable results obtained by new motor engines which are expected to get double the mileage from the same quantity of gasoline, on the better roads, etc. But it will take some time to get the autos equipped with the new engines and the present consumption of fuel per car will be so gradually reduced that it will hardly be noticed. On the basis of the present production of autos, there would be a decided increase, even allowing for full replacements on the average of seven years as the life of a car and as the consumption of gasoline per car will be very nearly the same next year as this, the business done will show a corresponding increase, so that the question of a supply of gasoline will be most important to the jobbers just as the question of a supply of crude will be the main factor with the refiner. Looking at it from the standpoint of "playing safely," a contract will be a very good thing.

Gasoline Price

In the present spot market the only price for U. S. Motor that is being quoted is 10¼ cents. There is a little gasoline being sold between marketers at 10 cents and refiners are, in some cases naming the same figure for U. S. Motor gasoline, with others asking 10¼ cents when they are well booked ahead. There are several sources of gasoline supply which reply to all inquiries that they are booked ahead and there are many of the companies that are not making more gasoline at this time than their own distribution requires. If they stick to this plan, and they surely should, it will simply mean that the buyer of gasoline must place his orders sufficiently in advance of his actual needs to be sure of receiving the gasoline on time. At this writing the gasoline market in Chicago is strong at one-fourth of a cent advance on all grades over a week ago.

Kerosene Movement Fair

Kerosene continues to move fairly well but the strength of the situation is rather in the limited offerings than in the demand from distributors. Of course the advances made in the eastern districts in the tank wagon prices has had a good deal to do with giving this market tone and strength. The prices around here are not nominal but actual. Business is being done steadily and at somewhat higher prices. The demand is not very large, just a steady movement to all parts of the territory. Kerosene is not so important with most distributors that they ship around very much for a price. The 41-43 gravity is now being held at 5¼ cents by all except those who want 5½ cents but sales at any figure above 5¼ cents are not numerous.

Furnace Oil Outlook

Furnace oils are promised a more active market by the colder temperature prevailing over the territory. There has been quite a steady movement of all grades from gas oil up to the 38-40 gravity. The rush of replacement has not begun and it will take some decidedly lower temperature to secure a very active demand, yet there has been a larger business and prices are strongly held. The oil burner business has become an established fact and one of the leading concerns has been financing itself through a sale of stock which has attracted quite a number of possible investors and has caused some people with capital to invest to make further inquiries regarding the industry. Something of this sort was necessary for the industry seems to be lacking in capital and in the case of a number of good burners unable to attain to quantity production which will have to come before the burner can become popular. The addition of an oil burner to the present costs of an adequate heating plant makes the investment too great a proportion of the cost of the average home.

Gas Oil Slow

Gas oil has not been specially active during the week and demand seems to many to be actually less. There has been some buying by gas companies and industries and some for use in oil burners but apparently the demand waits for the further stimulation of colder weather. There has been little change in the price situation. Deliveries on contracts to the gas companies are good but supplies have been ample and offerings free over the week.

Fuel oil continues to worry the dealers. The great threat, as many see it, is the constantly increasing spread between the refinery and the Smackover product. The latter has been most freely offered. One of the El Dorado refineries has broadcast an offer to sell and asked for bids. They promptly received several offers

that are known which were not apparently to their liking as they replied to the effect that they wanted business but not at that price or that the price offered was less than the oil cost. But the market was unsettled and one or two holders began offering Smackover fuel oil over December in any quantity at $1 a barrel. The best price obtainable for this product is $1.05 and this compares with a price of $1.30, which is the figure at which a number of Group 3 refiners are holding their product, even when the gravity is of the 18-22 variety. On this basis Smackover is actually purchasable at 30 cents per barrel less than the asking price of Group 3 refiners for their fuel oil and the trade says that Smackover must go up or that something will happen to the refinery product.

Fuel Oil Situation

From the refiners' standpoint they are justified in holding for their price. There are so many angles to the fuel oil business that it is hard to get a full and true viewpoint but among the outstanding features are the facts that the largest consumption of the year is supplied between December 1 and March 1. By the beginning of March the buying has been done for the large consumption and the demand begins to taper off and sometimes the tapering is quite rapid. The present actual consumption is large and it must increase. The railroads may not be buying much, if any oil, in the open market, but they are drawing against contracts or from storage and are using greater quantities than at any previous period, according to all reports. The steel companies are not running full time or anywhere near it. Several of the large steel producers closed down from Wednesday night to Monday morning for Thanksgiving Day, which is rather unusual and does not indicate a rush of business. Owing to the situation in the coal industry, there is more reason for continuing to burn oil even at a price above the average for there is a possibility that any industry that changed from oil to coal might find itself in a real coal strike and be glad to change back to a fuel of whose supply there was a better assurance.

About the only argument that those who look for lower prices have is the large stocks of fuel oils. These stocks are large, but the great accumulations are on the coasts, not in the inland fields, and there is little belief that the present stocks will be increased from now on. Those who have carried their stocks of fuel oil since last May and June are not likely to let go of them at reduced prices during the months for which they have been accumulating. As regards the Smackover oil, it should be remembered that any user of fuel oil can burn refinery oil while only a comparatively small percentage of the users can and will burn Smackover fuel oil, so that to the greater number of the plants that depend on oil for fuel, the price of Smackover oil is a matter of complete indifference except so far as it may be a factor in the price of refinery fuel oil. During the past month the offers of Smackover have been in excess of the demand and the price has hardly held its own. One very standard brand of Smackover fuel oil is now offered at $1.05 against a price a short time back of $1.10. During the same period the price of refinery fuel oil has made a decided advance in price in this market and closes very strong pith refiners holding at from $1.25 to $1.30 per barrel.

During the week there was a little sensation caused by a report that the Pure Oil Co. was making a price of $1.15 per barrel for 24-26 fuel oil with less than three-quarters of 1 per cent sulphur over December in any quantity from a tank car to a cargo. Inquiry developed that this was not Oklahoma fuel oil, but from Ohio, where the high cold tests would make the oil not generally usable, and the price compared with other prices made in that State is not especially low. It simply means that a little less Group 3 refinery oil will be sold there and the recent shipments to that locality have not beeen large, as the local refinery prices have been below the parity of the Group 3 market for both gas and fuel oils.

The lubricating business has dropped off so far as the spot consumption of motor oils is concerned and distributors report that there is only a fair business doing in either motor or industrial lubs for immediate delivery. On the other hand, compounders and those distributors who mix their own oils, have been making inquiries and placing contracts for the next season on a good scale, and the outlook for the coming season is very good. The price situation is firm. The advance in Pennsylvania crudes has added to the strength. Export business so far as developed in this city is of a routine character. Many of the export companies are fighting shy of the French business as the unsettled conditions there and especially the decline in the value of the franc makes the return on sales uncertain. Prices that look profitable when the sale is made show a loss when the time comes for payment, owing to the shrinkage in the value of French currency. The recent disturbing feature of the market in this section has been the sale of some sulphur supplies by the Gulf and to a less extent by the Magnolia companies in this territory. They have, in a way, been dumping outside of their own territory, but they now state that they are through and this is also an improvement in the situation which is becoming more in line with other refinery products.

There has been no change in the general list of tank wagon prices. No changes are reported at any division points and generally there is a reduction of the number of localities, mostly small places, where the tank wagon price has been reduced to less than normal. There has been little talk of any change in the gasoline quotations, but the advances in kerosene in the East have started some to prophesying an advance here. This is also regarded as unlikely by the best posted. Failing of an advance in crude prices in the Mid-Continent Field, there is little expectation of any change in tank wagon prices over the territory.

GASOLINE SITUATION STRONGER; KEROSENE CONTINUES TO ADVANCE

By N. O. Fanning

NEW YORK, Nov. 30.—The gasoline situation on the Atlantic Coast is improving. It is understood that many of those operating cut-rate gasoline stations are finding it difficult to obtain cheap gasoline to sell. Several good-sized contracts are about to run out, and will not be renewed. This indicates that in the near future there will be a rise in the tank wagon market.

General strength pervades all of the oil markets at the present time. Fuel oil and kerosene are especially firm. Of course all of this will affect the gasoline market favorably. With the demand holding up well and gasoline less plentiful, the price is bound to go up.

In addition there have been indications of a rise in the price of crude oil in the Mid-Continent Field, and it is also thought possible high grade California crude will be marked up in the near future. The markets seem to be absorbing the surplus heavy oil in such a manner as to give great encouragement to the oil fraternity throughout the country.

Consumption of gasoline has held up unusually well with a continuation of warm and sunny weather. The use of buses is growing rapidly in the East and is helping the market.

The restriction of refining operations in the Mid-Continent has helped the gasoline market greatly and it is also understood eastern refiners have reduced their stocks materially and are in good shape. They are said to be running only enough to supply current requirements and are ready to go into the open market for any surplus which may be required. In other words, the statistical position of the gasoline industry is getting into unusually strong shape.

Local marketers, however, point out that the gasoline situation is vulnerable due to the ease with which production can be increased, especially if prices are advanced. They fear a rise in quotations at this time may result in overproduction.

Kerosene Advances

The kerosene market continued to advance during the week, both Standard of New York and Standard of New Jersey advancing tank wagon prices one-half cent in their territories. At this rate kerosene will overtake gasoline, which is a queer development in view of the comparatively recent weakness in kerosene.

The strength in kerosene is attributed largely to the increased use of furnace oil in domestic oil burners, and to the heavy export movement. The latter is attributed to small stocks abroad.

In some parts of New York the retail price of kerosene is higher than that of gasoline. Gasoline is retailing in some sections at 15 cents and kerosene at 16 cents.

Gas Oil Firm

The market for gas oil is firm, with the Bayonne refinery price stabilised at 6¼ cents per gallon. New contracts are said to have averaged around that figure.

Fuel Oil Firm

Fuel oil continues firm, Diesel oil being $2.10 per barrel and bunker oil $1.65. It was reported that some small marketers were making concessions on Diesel oil, selling it for slightly under $2 per barrel, but the trend of the market would appear to operate against any decline in prices at this time. If such concessions are being given it is believed they represent a local or temporary situation.

Lubricants Firm

The lubricating oil market is firm, with prices continuing on an even basis. Red and pale oils are firming up considerably, and cylinder stocks are in good demand again.

The paraffin wax market is dull, with prices unchanged.

Petroleum Exports

The following table shows principal exports of petroleum and petroleum products from New York during the week ended November 25, 1925, and the two previous weeks (all figures in gallons unless otherwise noted in parentheses):

	Week Ended		
	Nov. 25	Nov. 18	Nov. 11
Gasoline—			
Bulk	1,175,970	5,197,738	3,053,200
Barrels	.....	.....	265,450
Cases	2,442,480	272,830	985,940
Kerosene—			
Bulk	1,315,306	5,201,923	7,164,980
Barrels	.....	.....	50,000
Cases	764,980	175,000	1,472,080
Fuel oil—			
Bulk	.....	370,509	.....
Fuel oil—			
Bulk	.....	348,764	182,688
Cases	15,000	.....	.....
Lubricating oil—			
Bulk	337,845	.....	.....
Barrels	1,247,350	1,301,500	585,350
Cases	124,370	33,700	72,700
Paraffin wax—			
Bags (lbs.)	.....	728,200	993,960
Barrels	.....	.....	1,355
Petroleum coke—			
Bulk (lbs.)	2,800,000	.....	.....
Crude oil—			
Barrels	364,200	149,900	197,400

Figures of exports include consignments exceeding 1,000 cases or 500 bbls. each.

The Export Market

A further advance in the export price of kerosene, amounting to one-quarter of a cent per gallon, was the feature of the New York oil export market during the week. Kerosene continues to be the outstanding product in interest in export circles, due to the heavy bulk movement from this port.

Both Europe and the Orient continue to be heavy buyers of kerosene, but much of the business is taken care of from the Pacific Coast. There has been a falling off in shipments of kerosene in cases from New York, which is being offset by larger bulk shipments from the Pacific Coast.

The gasoline movement continues good, especially the cased gasoline market. One of the largest consignments of cased gasoline to leave this port went out during the week, comprising 1,541,500 gallons, destined for Australia. Total cased gasoline exports during the week amounted to 2,442,480 gallons.

Shipments of lubricating oils show some improvement, especially as to barrel exports. These continue at the rate of more than 1,000,000 gallons weekly. Bulk and cased shipments are restricted, however. The barrel movement is largely to South America and the Orient.

A large shipment of petroleum coke left New York during the week, consisting of 2,800,000 lbs. to Ireland.

Crude oil export increased to 364,200 gallons, largely to France.

Tanker Charters

The tanker chartering market was fairly active during the past week, new fixtures being largely for the export trade. They include the following:

Tanker Cedar Park (Br.), 3,006 tons net, Gulf Coast to two French Atlantic ports, 21s. 6d. per ton, prompt loading.

Tanker Scottish Strath (Br.), 4,523 tons net, gasoline, Gulf Coast to Greece, 24s., prompt loading.

Tanker Pallas (Br.), 2,788 tons net, Gulf Coast to French Atlantic, 19s. per ton, prompt loading.

Tanker Massis (Br.), 3,062 tons net, December-January loading, 40,000 bbls. gasoline and kerosene, Gulf Coast to French Atlantic.

There has been a substantial advance in tanker chartering rates in certain routes, amounting to from 3s. to 7s. per ton.

Oil Receipts

Estimated daily average receipts of crude and refined oil at Atlantic ports by water were 310,000 bbls. during the week ended November 25, a decline of 78,000 bbls. Receipts from the Gulf Coast continued on a small scale, averaging 239,000 bbls., while receipts from the Pacific Coast fell to 35,000 bbls. daily, a drop of 43,000 bbls. Imports fell off sharply to a daily average of only 36,000 bbls., of which 17,000 bbls. daily came from Mexico and the remainder, 19,000 bbls. daily, from Venezuela.

Petroleum Receipts

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports from the Gulf and Pacific Coasts of the United States, and imports, for the last three weeks; also monthly record for the last 12 months (figures in barrels):

	Week Ended		
	Nov. 25	Nov. 18	Nov. 11
Gulf Coast	239,000	234,000	258,000
Pacific Coast	35,000	78,000	33,000
Imports	36,000	76,000	73,000
Total	310,000	388,000	364,000

Daily Averages By Months				
1925—	Gulf	Pacific	Impts.	Total
October	249,000	36,000	102,000	387,000
September	306,000	66,000	76,000	448,000
August	291,000	54,000	90,000	435,000
July	391,000	63,000	107,000	561,000
June	379,000	66,000	118,000	563,000
May	312,000	81,000	145,000	538,000
April	353,000	78,000	101,000	532,000
March	273,000	82,000	135,000	490,000
February	262,000	51,000	147,000	460,000
January	311,000	77,000	133,000	521,000
1924—				
December	306,000	83,000	85,000	474,000
November	246,000	80,000	150,000	476,000

The foregoing estimates are based upon the carrying capacity of incoming oil-laden tankers.

SCIENTIFIC METHODS CAUSE TWO LAWSUITS

HOUSTON, Tex., Nov. 28.—More suits involving the use of the torsional balance for exploration work in connection with saline domes in the Gulf Coast plains belt have been filed in the Federal Court in this city by landowners. Damages are asked.

The suits were originally filed in Fort Bend County, but were transferred because the defendant oil corporation is chartered in another State. The Roxana Petroleum Corp. is named as the defendant. The suits were filed by Mrs. Mamie George, A. P. George individually and as an executive and the Mallard Land Co. The damages asked aggregate $69,000. The plaintiffs are ranch owners in Fort Bend County.

The plaintiffs allege the oil company used the German Torsional balance method of locating saline domes on their lands without permission and that as a consequence of rumors that no saline domes were found, the land has lost its value as an oil prospect.

REFINING AND MARKETING

Important Advances In Export Rates Go Into Effect Dec. 10

Involving increases from Kansas, Oklahoma and North Texas points to New Orlenas, La., as high as 8 cents new export rate schedules on refined oils will become effective December 10 unless a last minute suspension of the new schedules is granted by the Interstate Commerce Commission. The increases to New Orleans follow the action of the Galveston and other Texas port cities which several months ago protested to the Interstate Commerce Commission that rates now in effect did not give the Texas ports the advantage they were entitled to based on mileage from the Mid-Continent refineries.

Under the new schedules the new rate of 20½ cents to Galveston from North Texas will continue with a 4-cent increase in the New Orleans rate, making it 24½ cents from most points. Changes from Kansas and Oklahoma to New Orleans vary but the increase will average about 3 cents. No change was made in the present 22-cent rate from Tulsa. Most of the export business out of the Kansas, Oklahoma and North Texas points at the present time is to New Orleans where the leading export buyers have their terminals. It is believed, however, that if the new rates become permanent that the difference between the Texas and Louisiana rates will be so great that it will prove an important advantage to the former ports.

Many traffic managers in the Mid-Continent predict at least a temporary suspension of the new schedules.

PLANT OPERATORS MEET IN OKMULGEE FRIDAY

The program for the group meeting for natural gasoline plant operators to be held at Okmulgee Friday night was announced Tuesday by A. V. Bourque, secretary of the Association of Natural Gasoline Manufacturers.

The following program has been arranged: "Care of Bottom Outlet Valves and Safety Valves," C. C. Meadows, master car builder of the Tidal Refining Co.; "Temperature and Liquid Control," A. F. Maxson, plant engineering department of the Sun Oil Co.; "Lubrication," Arthur L. Davis, chief chemist of the Empire Refineries, Inc.; "Cooperation Between Field and Office," C. L. Swim. Skelly Oil Co., and "The Practical Value of Charcoal Tests," W. R. Lentz, Chestnut & Smith Corp.

The meeting will be held in the Parkinson Hotel beginning at 7:30 o'clock, Mr. Bourque announced. The meeting will include plant operators from all parts of Okmulgee County.

MAGNOLIA ENLARGES PLANT

HOUSTON, Tex., Nov. 28.—The Magnolia Petroleum Co. has purchased a 200-acre tract of land adjoining its refinery at Beaumont, Tex. The additional land will provide for an enlargement program which the company has under way. The refining works are now in a separate zone by special ordinance, this avoiding city taxes.

BANKRUPTCY PETITION

The Harbor Refining Co., of Los Angeles, Cal., has filed a voluntary bankruptcy petition in the United States District Court at Los Angeles. The liabilities are listed at $137,378.38, with assets of $85,350. Of the liabilities $78,914.45 were unsecured claims. The company has operated a 1,500-bbl. topping and asphalt plant at Los Angeles.

CREDIT INTERCHANGE BUREAU WILL START FIRST OF YEAR

With final details completed the Oil Credit Interchange Bureau, under the supervision of the National Association of Credit Men, will start functioning January 4, according to A. G. Elliot of the Pure Oil Co., chairman of the board of governors of the bureau. Establishment of the bureau marks the fulfillment of plans which have been in process of formation for more than a year and which were put in definite form at the convention of the Refinery Credit Men's Association at Tulsa, September 29 and 30.

Headquarters for the bureau, which were selected by E. B. Moran, manager of the western division of the National Association of Credit Men, will be at Tulsa. The offices will be in the Central National Bank building adjoining those of the Tulsa Credit Men's Association. Although the oil bureau and the Tulsa association have adjoining offices and both are branches of the national associtaion they will be operated separately.

Final preparations for the opening of the bureau were made at a meeting of the refinery credit men last week at the Mayo Hotel attended by Mr. Moran, who will keep directly in touch with the bureau until its operation is in full swing. Although at first the bureau will confine its work to compiling and interchanging only information regarding oil credits, it later will be enlarged to include an adjustment department and other features.

Thirty oil and refining companies already are members of the bureau, but a campaign will be started at once to enroll as many others as possible. While headquarters are at Tulsa, the scope of the bureau is nation-wide and efforts will be made to enroll companies in all parts of the country. Control of the bureau will be in the hands of the board of governors of the Refinery Credit Men's Association of which Mr. Elliot is chairman. Other members are: M. E. Kleepsie of the Waite Phillips Co., Tulsa; J. D. Powell, Skelly Oil Co., El Dorado, Kan.; J. C. Penrod, Texhoma Oil & Refining Co., Wichita Falls, Texas, and G. A. Barnes, White Eagle Oil & Refining Co., Kansas City, Mo. Sufficient finances already have been pledged to assure the operation of the bureau for the coming year.

PAN-AMERICAN OFFICERS GO ON INSPECTION TRIP

CHICAGO, Nov. 30.—Officials of the Pan-American Petroleum & Transport Co. will sail from Key West on the yacht "Casiana" on December 5 for a two months' trip of inspection of its properties in South America and Mexico. From Key West they will go to Havana and from there to Maracaibo, stopping at Kingston en route.

The company controls extensive properties situated in Maracaibo Basin, Venezuela. The terminal is at the Island of Aruba, where extensive work is now going on in building a harbor and putting up tankage. This work will be looked into before proceeding to Maracaibo. Considerable time will be spent at the latter place as the company owns millions of acres of oil lands in the basin.

From Maracaibo the officials will go to Caracas, and after completing their inspections will proceed to Tampico, Mex., where the company has large interests. After a trip to Mexico City, the officials will return to the United States.

Those making the trip include: Col. Robert W. Stewart, of Chicago, chairman of the board of directors, Standard Oil Co. of Indiana and member of the board of the Pan-American Petroleum & Transport Co.; F. H. Wickett, chairman of the board, Pan-American Petroleum & Transport Co.; Paul H. Harwood, vice president in charge of marine;; S. W. Chambers, head of the transportation department of the company; Edward Tinker, president of the Chase Securities Co.; H. C. Bretschneider of the Midwest Refining Co.,; S. S. Price, chief geologist of the Dixie Oil Co.; L. Pennington, secretary to Mr. Wickett, and Master Jack Stewart, son of Colonel Stewart. James Stewart, vice president of the Lago Co. and president of the Pan-American Exploration Co., and H. A. Fitzsimons, president of the Fitzsimons Drilling Co., left a few days ago for Maracaibo in advance of the other officials.

ELECTED VICE PRESIDENT

Howard B. Coffin has been elected vice president of the White Star Refining Co. with headquarters in Detroit, Mich. Mr. Coffin, who was formerly connected with the automobile business in Detroit, will have charge of the White Star distribution.

CHICAGO DISTRIBUTION SOLD TO SUN OIL CO.

CHICAGO, Nov. 28.—B. H. Anglin, vice president of the Indian Refining Co., Inc., of Lawrenceville, Ill., has been in the city to complete a deal whereby the company sells its local distributing business to the Sun Oil Co. In making the announcement of the sale Mr. Anglin stated that it was done in furtherance of the company's policy to confine the distribution of its gasoline to such localities as were within the natural territotory of the refinery at Lawreneeville, where the freight rates and marketing conditions were most favorable to the sale of gasoline shipped from Lawrenceville.

Mr. Anglin also stated that they were endeavoring to restrict the distribution to points where the structure of the market was such as to permit the largest gallonage at the least expense for service stations. He also said that the former distribution headquarters would be removed from Chicago to Joliet. The sale of Havoline oils in Chicago will be continued through a distributor on substantially the same basis as that enjoyed by other distributors of the product in 44 States to whom exclusive sale has been granted. There will be no change made in the tank car sales office managed by Walter Cuneo in the McCormick Building at 332 South Michigan Avenue.

HASSETT ESTABLISHES TULSA HEADQUARTERS

W. B. Hassett, president of the Imperial Refining Co. and the Kettle Creek Refining Co., has moved to Tulsa from Lexington, Ky. Mr. Hassett, who is widely known in Mid-Continent circles, will maintain his headquarters at the Imperial offices in Tulsa.

Other changes made recently in the Imperial-Kettle Creek companies involve the transfer of J. R. Trisler, vice president of the Imperial Oil Marketing Co., from the Tulsa office to El Dorado, Ark., where he will be in charge of the refinery of the Kettle Creek Refining Co. The Kettle Creek plant is being enlarged including the installation of two Dubbs cracking units. The Arkansas sales office of the Imperial Oil Marketing Co. has been moved from Little Rock to El Dorado.

GRANT INJUNCTION TO RED SEAL CORPORATION

OKLAHOMA CITY, Okla., Nov. 30.—The State Supreme Court the past week upheld an injunction granted the Red Seal Refining Corp. of Delaware by an Oklahoma county district court restraining R. M. Shaw from operating a company, of which he is president, under the name of Red Seal Refining Co.

By this action, the court overruled Mr. Shaw's contention that he was entitled to the use of the name within the State, although he had filed his incorporation papers with the secretary of state three days before the Delaware corporation had obtained its domestic license.

The Red Seal Refining Corp. was incorporated in Delaware in January, 1924, to take over the Oklahoma City refinery of the Noble Oil & Gas Co. Shaw then was employed to obtain an option on the plant for the Red Seal Refining Corp., but, instead, it was claimed, organized the Red Seal Refining Co.

HOLD IMPORTANT RATE HEARINGS THIS MONTH

Oral arguments in connection with the Mid-Continent rate case involving rates from Mid-Continent points to Western Trunk Line Territory will be heard by the Interstate Commerce Commission December 21, 22 and 23, according to an announcement of the past week. The arguments will be heard by the entire commission. The four complainants in this case are groups of Kansas City, Mo., Kansas, North Oklahoma and North Texas refiners, with several intervenors including other groups of refiners. The Washington hearing follows the recent recommendation of Commissioner Seal, which is opposed by all the complainants.

Another important rate hearing will be held at Dallas, Texas, December 9 when the petroleum interests affected will be heard in Ex Parte 87 in which the Western Carriers seek a 5 per cent increase in rates. Fayette B. Dow of Washington, D. C., will represent the oil companies.

The Interstate Commerce Commission has ordered adjustments in rates to be made so that in all cases the rate on refined oils is 6 cents above the rate on crude oil. The territory affected is that west of the Illinois-Indiana line, south to the Ohio and Mississippi rivers and west to the Rocky Mountains. The differences at the present time range from 5.5 to 6.5 cents. The reductions will be in rates which were not adjusted before the war period.

COL. STEWART MAKES ADDRESS

Col. R. W. Stewart, chairman of the board of directors of the Standard Oil Co. of Indiana, delivered the principal address at the "Greater Muskegon Dinner" held at Muskegon, Mich., Tuesday night, December 1, under the auspices of the Business Commercial Exchange. Several members of the Standard's board were present at the dinner which was attended by over 500 business men of western Michigan.

NEW JOBBING CONCERN

C. M. Zink and H. T. Jones have organized a jobbing business at Stamford, Tex. They will handle gasoline, kerosene, lub oils and greases. Mr. Zink had several years' refinery experience, being connected with plants of the White Eagle Oil & Refining Co., Texhoma Oil & Refining Co., and the Griswold Oil Corp. Mr. Jones was also formerly connected with the Griswold Corp. and the Walker Consolidated Oil Corp.

Renewed Interest in the Oil Group

Stocks Active But Regular the Last Week. Average Price of 20 Representative Stocks 25 per cent Higher Than a Year Ago

By N. O. Fanning
Room 543, 30 Church St., New York

NEW YORK, Nov. 30.—Oil stocks were active but irregular during the past week. The stiffening of oil prices, especially the advance in the price of gasoline by the Standard Oil Co. of New York, is taken as reflecting a real improvement in the oil situation and has caused a renewed interest in the oil group.

The course of oil securities this year has been decidedly unlike that of 1924. Many traders are unaware that on the average, oil stocks are selling considerably higher than at this time last year.

The Oil and Gas Journal's average price of 20 representative oil stock listed on the New York Stock Exchange has averaged about 56.49 this month. In November, 1924, it averaged only 44.86. This represents a gain this year of 11.53 points, or more than 25 per cent. Another remarkable feature of this comparison is that at present oil stocks are not considered as representing "boom" price levels, as with the exception of a few issues here and there, this class of securities has remained comparatively inactive and have attracted little attention. Nevertheless, they have been creeping upward.

Throughout 1925, in fact, oil securities on the whole have maintained fairly high prices. The highest point of The Oil and Gas Journal's average was 59.56 on March 2. The November average of 56.49 is only 3.07 points below the peak. In fact, the average this year has not fallen below 50, while it dropped to about 45 in October, 1924, the low for that year.

While the 1925 level of oil securities quotations has been substantially below the peak prices reached in 1919, 1920 or 1922, according to average records this year has witnessed less fluctuations in oil stocks than is the rule, and the general level of prices has been high.

Another feature this year has been the forging ahead of individual issues in the face of dullness or even weakness in the general list of oil stocks. Such issues as International Petroleum, Ltd., Humble Oil & Refining, Vacuum Oil and so on have been consistently strong throughout the year.

Speculators looking for sudden rises in oil stocks as a group have been disappointed this year, but those looking upon the oil industry as a means of investment have not found the course of the better class of oil stocks unfavorable at all. In fact, they have been more than satisfied with the stability manifested by the oil group.

International Petroleum, Ltd.

International Petroleum, Ltd., made a new high above 31 during the week. Imperial Oil reached a new high of 34¾.

Humble Oil & Refining reached a new high for all time of 79⅞.

Standard Oil Co. of New Jersey common is selling at approximately 43, against a high for the year of 47½ and low of 38⅜. Standard of New Jersey controls the majority of the stock of International Petroleum, Ltd., Imperial Oil, Ltd., and Humble Oil & Refining.

General American Tank Car

General American Tank Car Corp. has arranged for the sale of 50,000 shares of common stock, the proceeds of which will be used to retire $3,000,000 equipment trust certificates and other corporate purposes. A banking syndicate, headed by Blair & Co., is understood to have purchased the stock.

Magnolia Petroleum

Stockholders of the Magnolia Petroleum Co. have unanimously approved the merger of the company with the Standard Oil Co. of New York. Magnolia Petroleum shareholders will get four shares of Standard of New York stock for one of Magnolia. All the old officers of Magnolia will be retained. A new company has been chartered, known as Magnolia Petroleum Co. of Texas.

Pacific Oil

The Pacific Oil Co. for the quarter ended September 30, 1925, reports surplus of $3,696,158 after charges, Federal taxes, depreciation and depletion, equivalent to $1.13 per share earned on 3,500,000 outstanding shares of no par value capital stock.

Surplus for the first nine months of 1925 totaled $12,093,060, equal to $3.46 per share, against $8,482,115, or $2.42 per share, in the first nine months of 1924.

The income account for the nine months ended September 30, 1925, compares with the same period of 1924 as follows:

	1925	1924
Gross earnings	$24,320,599	$17,009,429
Expenses and taxes	11,470,772	7,903,067
Net profit	12,849,827	$ 9,106,362
Other income	2,386,521	2,188,582
Total income	$15,236,348	$11,294,944
Deprec., depletion	2,351,596	2,303,714
Federal tax reserve	791,692	509,115
Surplus	$12,093,060	$ 8,482,115

M. E. Lombardi has been elected vice president of the Pacific Oil Co. to succeed A. D'Heur, deceased; W. L. Buchner, formerly chief clerk, was elected assistant secretary and assistant treasurer. Other officers were reelected.

Standard of New Jersey

Shareholders of the Standard Oil Co. of New Jersey at a special meeting approved the plan proposed by directors providing for a new employe stock subscription plan to run for three years, starting in 1926. Under the new plan the company still puts in 50 cents for each dollar subscribed by the employe; subscriptions are limited to 10 per cent of the salary, instead of 20 per cent provided in the old five-year plan expiring at the end of 1925; employes who subscribed under the previous plan must retain at least two-thirds of the stock received under it to participate in new subscription; directors are not permitted to subscribe.

Tidal Osage Oil

The Tidal Osage Oil Co. reports for the nine months ended September 30, 1925, net income of $430,097 after depreciation, depletion, taxes and canceled leases, equivalent after allowing for 7 per cent preferred dividend requirements to 63 cents per share (par $10) earned on the outstanding 631,319 shares of common stock. This compares with $90,478, or 10 cents per share, in the same period of the previous year.

Pure Oil Co.

It is understood that part of the money realized by the Pure Oil Co. from its sale of 50 per cent interest in the Pure Oil Pipe Line Co. of Texas to Prairie Pipe Line Co. will be used in partial retirement of Pure Oil's 5½ per cent purchase money notes, of which $6,000,000 are now outstanding.

These notes, originally totaling $15,000,000, were issued in February, 1924, when the Pure Oil Co. purchased the Humphreys Pure Oil Pipe Line Co. of Texas, which owns the 208-mile trunk pipe line connecting the Mexia and Currie fields with the Smiths Bluff refinery. Retirement of these notes will release the Pure Oil Pipe Line Co. stock held as security. The notes bear 5½ per cent interest and are due $3,000,000 February 1 and $3,000,000 August 1, 1926. The entire $6,000,000 may be paid on February 1.

Independent P. L. Co., Inc.

Independent Pipe Line Co., with capital of $300,000, has been incorporated in Oklahoma to handle the crude oil production of the Independent Oil & Gas Co. Company plans construction of lines connecting Independent's important producing properties with its refinery at Okmulgee.

The New York Stock Exchange has stricken from the list Tide Water Oil Co. temporary certificates for preferred stock and California Petroleum Corp. permanent certificates for the common, effective December 4. California Petroleum Corp. temporary certificates for common stock have been admitted to the list.

The Tide Water Oil Co., according to reports in the financial district, is expected to make an offer for the minority stock of the Tidal Osage Oil Co. The Tide Water Oil Co. now owns more than 50 per cent of the stock in the Tidal Osage Co. The acquisition, it was reported, would be arranged through an exchange of Tide Water stock for Tidal Osage shares. The terms of the exchange were not made known.

It was reported in responsible quarters last week that the minority interest of the Tidal Osage Co., after fixing what they considered a fair price, made a proposition to sell their shares to the Tide Water Oil Co. When the Tide Water

(Continued on Page 146)

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

Stocks—	Par	§Dividend Rate	Clos. Quot. Nov.30	Clos. Quot. Nov.23	1925 High	1925 Low	1924 High	1924 Low	1923 High	1923 Low
American Republics	..	..	*63	63¼	76	48	48	35	..	..
Associated Oil	25	8	40⅛	40	41½	32	34⅝	27⅝	29¼	29½
Atlantic Ref., com.	100	..	108	107	117½	95¼	140½	78½	100	98⅝
Barnsdall "A"	25	..	26	24⅝	30	18⅝	29½	14	37	9⅞
California Pet., com.	25	7	31	31	32⅝	23⅞	29	19⅞	28½	17½
General Petroleum	25	8	49	48½	59	42	45	38⅝	..	..
Houston Oil	100	..	69	69¾	85	59	82½	61	78	40⅝
Independent Oil & Gas	..	†1	30⅝	31	41⅜	13½	16¼	5⅜	11¼	3⅝
Indian Refining	10	..	9	9⅛	10⅝	5⅛	7	8⅝	8⅛	4
Louisiana Oil	10	..	16⅞	17	23⅝	13⅜	..	..	..	..
Maracaibo	..	..	25	25	35½	20⅝	37½	25⅝	28¼	16
Marland	..	†3	58	56	58⅜	32⅝	42	29	50⅝	18½
Mexican Seaboard	..	..	10⅝	11⅞	22½	10⅜	25⅜	14⅛	19⅝	5⅜
Mid-Continent Pet.	..	..	36¼	36⅞	38	25⅜	40¼	22⅝	62¼	23⅜
National Supply	50	6	56⅜	57	71	55⅛	72⅝	54	68	54
Oil Well Supply	..	..	35⅞	*34⅞	..	..	..	..	..	..
Pacific Oil	..	†3	59⅝	59⅝	65½	51⅜	58¼	45	52⅛	31½
Pan Amer. P. & T., com.	50	12	72	71¼	83⅞	61	65	44¼	93½	53
Pan Amer. Western "B"	..	x50	42	42	47	37¼	..	..	..	..
Phillips Pet.	..	†2	43	43⅛	47½	36¼	42¼	28½	69⅝	19⅝
Producers & Refiners	50	..	14⅝	14½	32⅝	12½	43½	29⅜	58¼	17½
Pure Oil, com.	..	6	26⅝	27	33⅝	25¼	30¼	20	32	16½
Royal Dutch, N. Y. sh.	13.40	4.42	53⅝	54⅝	57⅜	48¼	59½	40⅜	55½	40½
Shell Transport	10	3.30	45½	44⅞	45⅝	39⅜	42	33	41⅛	29½
Shell Union, com.	..	†1.40	24⅜	24½	28⅝	21⅝	22½	15⅜	19¼	12⅝
Simms Pet.	10	..	23¼	22⅝	26⅝	17¾	24	10⅜	16⅝	6½
Sinclair Consolidated, com.	..	..	20	20¼	24⅞	17	27½	15	39⅜	16
Skelly Oil	25	..	30½	30⅞	32½	21⅝	29	17½	35	12⅛
Standard of California	25	8	56⅝	56⅛	67⅛	61⅛	68½	55⅛	64½	47½
Standard of N. J., com.	25	4	43	42⅞	47½	38⅝	42½	33	44¼	30⅝
Sun Oil Co.	..	1	39½	40¼	46½	33⅜	..	..	..	..
The Texas Co.	25	12	52	51⅞	54⅝	42⅝	45⅝	37⅜	52⅜	34⅜
Texas Pacific Coal & Oil	10	..	15⅝	15⅝	23⅜	11	15¼	8¼	24⅝	5½
Tide Water Oil (new)	..	4	36½	34⅝	‡152	122	151	116½	144	94
Transcontinental	..	..	4⅝	4⅞	5⅝	3½	6¼	3⅝	14¼	1¼
Union Oil of California	25	7.2	35⅝	35⅛	43⅝	33⅛	39	35½	..	..
Union Tank, com.	100	5	128	130	134	118	132⅝	94	114	106
White Eagle Oil & Ref.	..	2¼	27¼	27½	31⅝	25⅝	29⅝	23¼	30⅜	29½
Standard Oils										
Anglo-American Oil	£1	25	17¼	16	26⅜	18	18⅝	14⅝	19⅝	13½
Borne Scrymser	100	12	*223	*220	240	205	264	150	153	110
Buckeye Pipe Line	50	14	*68	*67	72	54	85½	51	94	57½
Chesebrough Mfg. Co.	25	14	67¼	70	74	48½	52½	29¼	340	205
Continental	10	10	24½	23¾	31½	21⅝	..	..	..	..
Crescent Pipe Line	25	..	16	16½	17½	10	20	11¼	25	15
Cumberland Pipe Line	100	12	140	*141	156	128	148	108	117	80
Eureka Pipe Line	100	8	*67	67	96	70	105	74	117¼	87
Galena Signal, com.	100	..	38	*39	68½	34½	69¾	52⅛	78	55
Humble Oil & Refining	25	4.8	74⅝	73½	79	42½	43¾	36	41	28½
Illinois Pipe Line	100	12	135	141	154½	127	161	123	171	115
Imperial Oil (Ltd.)	..	†3	34¼	33¼	34⅝	27¼	119	99	123	92
Indiana Pipe Line	50	3	62½	62½	84	60	110	66	103	81
International Pet. Co.	10	x50	31⅝	29⅝	30⅜	22½	24⅜	16⅜	24⅝	13¼
Magnolia Pet. Co.	100	4.5	181¼	179½	186	130½	162	125	166	123
National Transit Co.	12.50	16	18½	*18⅜	25½	19⅛	25⅞	20⅝	20	19⅛
New York Transit	100	3	54½	54½	79	50	97	54½	138	70
Northern Pipe Line	100	6	*80	*80	88	70	107½	72	111	96
Ohio Oil Co.	25	8	64½	65½	75¼	60	79½	53	85⅝	48¾
Penn.-Mex. Fuel	25	..	*23	*22	44	20	35⅝	27	45	10½
Prairie Oil & Gas	25	‡2	55½	53¾	65½	45⅝	269	193	272	152
Prairie Pipe Line	100	8	128½	129	127½	106	111	100	117	93
Solar Refining Co.	100	15	*215	216	259	200	240	170	212	161
South Penn Oil	100	..	169	172½	197	139	176	117	196	100
Southwest Pa. Line	100	6	57	*54	84	53	89	68	89	66
Southern Pipe Line	100	4	*69	71	103	67½	100	80½	116	87
Standard of Indiana	10	10	64¼	64⅜	70	59½	69⅜	54½	69⅞	48½
Standard of Kansas	25	..	32	32½	46	30¼	50½	32½	56½	26⅜
Standard of Kentucky	25	16	*133	132⅝	137	114¾	121⅞	101	109½	76
Standard of Nebraska	100	20	*241	240	270	231	262	198	280	186
Standard of New York	25	5.6	45⅝	44½	48⅝	40	48	37⅝	49⅝	35½
Standard of Ohio, com.	100	10	*362	367	369	338	337½	277	320	270
Swan & Finch, com.	25	..	*18	19½	27	12	28	20	..	..
Vacuum Oil	25	†3.75	100½	100⅝	105½	80½	83⅛	59½	55½	40
Washington Oil	..	..	*33	*30	35	30	30	25	28	20¼
Miscellaneous										
Gulf Oil Corp. of Pa.	25	6	83⅞	84⅜	84⅜	63½	67⅝	56	68¼	45⅝

*Bid, no sales. †In dollars. §The figures in this column are kept up to date as far as possible, but are not guaranteed. xCents per share. ‡Old stocks.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Nov. 30	56.93	Oct. 26	55.61	Sept. 21	51.65
Nov. 23	56.49	Oct. 19	53.03	Sept. 14	53.02
Nov. 16	57.31	Oct. 10	52.18	Sept. 5	51.18
Nov. 9	56.47	Oct. 5	52.94	Aug. 31	51.16
Nov. 2	55.67	Sept. 28	51.29	Aug. 24	52.06

HUGHES TOOL COMPANY

Branch Plants
Los Angeles, Calif.
Oklahoma City, Okla.

Main Office and Plant
HOUSTON
TEXAS

Export Office
New York City, N. Y.

Brief Items for Plant Operators

Government Issues Bulletin Covering Manufacture of Wax

An intensive study of methods of manufacture of paraffin wax and lubricating oils is being conducted by the Bureau of Mines, Department of Commerce. Lubricating oil of high quality can be made from almost any crude petroleum, but because of differences in their chemical nature it is very much easier to make lubricating oils from some crudes than from others. To find out in detail why this is so is the object of the bureau's present investigation.

At least 75 per cent of the lubricating oil manufactured in the United States is made from crude oil that contains paraffin wax (so-called "paraffin base" or "intermediate base" crude). This wax has a boiling range similar to that of the lubricants found in the crude, consequently the lubricating distillates obtained from these crudes contain wax that must be removed before satisfactory lubricants can be produced.

Separation of wax from oil is often a very difficult and expensive process; in fact, many progressive refiners consider wax a necessary evil. The price received for finished paraffin wax is frequently less than the total cost of recovering and refining it. However, the expense of separating crude wax from the lubricating oil is a large part of the total cost, so that the actual refining of wax is usually profitable.

Before the problem of separation of oil and wax could be investigated it was found necessary to study in detail methods for measuring the concentration of paraffin wax in oil-wax mixtures and to devise new methods which would be more satisfactory for research than any in present use. In Technical Paper 368, by L. D. Wyant and L. G. Marsh, the results of work that has been done along this line, under a cooperative agreement between the Bureau of Mines and the State of Oklahoma, are given. The present methods of testing oil-wax mixtures and commercial paraffin waxes are compared and a new method that depends upon the relative insolubility of paraffin wax in acetone is described.

The American Society for Testing Materials' paraffin-wax melting point method has been found an accurate and satisfactory method of determining the melting point of commercial paraffin-wax or wax-oil mixtures of relatively low oil content; however, the method is unsatisfactory when the oil content is as much as 20 per cent.

The most satisfactory method of determining the melting point of oil-wax mixtures, in which the oil content is 15 per cent or more, is the American Society for Testing Materials' petrolatum melting-point method.

Acetone as Solvent

The various experiments made in developing the use of acetone as a selective solvent for oil-wax mixtures showed the following interesting facts:

The difference in solubility of commercial grade oil-free paraffin wax in acetone between 50 and 70 degrees Fahrenheit is only 0.3 per cent. For high-melting point oil-free paraffin it is only 0.13 per cent, thus making any one temperature between these limits satisfactory for comparative testing. The quality or melting point of the paraffin affects the solubility more than does an increase of temperature between 50 and 70 degrees Fahrenheit.

The amount of oil soluble in acetone at 60 degrees Fahrenheit is from 5 to 15 per cent, depending upon the nature of the oil. This solubility decreases until it is only 2 to 10 per cent when the temperature is reduced to 50 degrees Fahrenheit, making 60 degrees Fahrenheit a more suitable working temperature for separation of oil-wax mixtures than lower temperatures. If the wax portion of a sample is crystallized out of acetone a second time, it is more nearly free of oil than any ordinary commercial paraffin wax. The matter of obtaining a truly representative sample of an oil-wax mixture is very important.

In testing oil-wax mixtures for their wax content, the wax portion has to be crystallized out of acetone a second time if its melting point is abnormally low. If the melting point of the wax portion is abnormally high the best procedure is to recover an additional crop of wax crystals from the oil portion of the separated sample by crystallizing it out of acetone a second time.

The accuracy of the above method of analysis increases as the percentage of wax contained in the sample or the melting point of the wax increases. Technical Paper 368, "Paraffin wax and its properties; methods of testing wax and of analyzing oil-wax mixtures," may be obtained from the Bureau of Mines, Department of Commerce, Washington, D. C.

LATEST SPECIFICATIONS FOR NATURAL GASOLINES

The Association of Natural Gasoline Manufacturers has issued a pamphlet giving the official specifications for natural gasoline. No changes have been made in the five grades of natural gasoline or the recovery, end point and gravity specifications. The color specification is given with a part of the tentative method of distillation test adopted June, 1925, by the American Society for Testing Materials. A list of the Coefficients of Expansion for respective groups of petroleum products is also included. Copies of the pamphlets are available from the headquarters of the association in the Cosden Bldg., Tulsa.

Independent Starts Improvement Program At Okmulgee Refinery

The Independent Oil & Gas Co., of Tulsa, has started work on a $400,000 improvement program at its Okmulgee, Okla., refinery, purchased several months ago from the Allied Refining Co. The program when completed will provide for the manufacture of all grades of lubricants with a 1,000-bbl. cracking unit.

The plant's operations at the present time are confined to skimming and the manufacture of steam refined cylinder stocks. Fifteen Sharples Centrifuging machines will be installed with a contact filtering system never before installed in the Mid-Continent Field. This equipment will make it possible for the company to manufacture practically all grades of Mid-Continent neutrals, steam refined cylinder stocks and bright stocks. The plant will have a lub oil output of 300 bbls. daily.

Through the release of the stills previously used in the manufacture of the cylinder stocks the crude capacity will be increased from 1,000 to 2,000 bbls. of crude daily. These stills will be operated continuously. One 1,000-bbl. Jenkins cracking still will be installed immediately. New bubble towers will be installed for the skimming operations.

Other improvements include the building of laboratory and office buildings at the plant site with a car shop which will also provide locker rooms and shower baths for the employes. Additional storage and trackage will also be provided. The plant operates on crude secured in the Okmulgee area especially adapted to the manufacture of lub oils.

The improvement program which will be completed within the next three months is under the direction of R. M. Riggins, manager and E. B. Hickman, chief engineer.

BUYS GASOLINE PLANT

The Signal Gasoline Co., Inc., has purchased the 10,000-gallon absorption plant of the Pacific Gasoline Corp., located in the Signal Hill Field of California, for a reported consideration of $500,000. The Signal company previous to the purchase already had two plants in operation in the Signal Hill Field with a combined capacity of 50,000 gallons daily.

In the northwest extension of the Signal Hill Field the Northwest Gasoline Co. has started the construction of an absorption plant with a capacity of 4,000,000 cubic feet daily.

AMONG THE TECHNICAL MEN

Having a part in the construction of the country's first natural gasoline plant is one of the technical experiences of A. J. Schlosser, now general superintendent of natural gasoline plant operations for the Barnsdall Refining Co., Tulsa. It was back in 1904 and 1905 that Mr. Schlosser was employed by the South Penn Oil Co. in building a gasoline plant at Mayburg, Pa., claimed to have been the first ever constructed.

A. J. Schlosser

Mr. Schlosser was first employed as a machinist in a railroad shop in New York when he was a boy of high school age. Although he quit school to take his job, he did not give up his education as he immediately enrolled in correspondence schools, later going to a business college and then taking work from Cornell University.

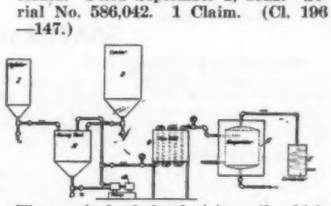
Completing courses from Cornell in mechanical and electrical engineering, he became a machinist for a gas engine manufacturing company and later accepted a position as construction engineer for the Struthersville-Wells Co. of Warren, Pa. While with this company he had charge of installing the first power plant for the Potter Gas Co., with which company he later became connected, having charge of its gas and gasoline plants.

In this capacity he remained from 1906 to 1918 when he was transferred to Oklahoma in the gasoline department of the Barnsdall Oil Co., which until recently was the parent company of the Potter Gas Co. Mr. Schlosser's gas and gasoline connections were broken for a period in 1904 and 1905 when he was in charge of the sawmills and railroads of the Watson-Lends Lumber Co. in Pennsylvania.

Mr. Schlosser is a member of the Tulsa Technical Club, being one of the charter members, and has been one of the directors of the Association of Natural Gasoline Manufacturers since its organization. At present he is chairman of the gas testing committee of the association. He was born in Vienna, Austria, in 1879, but when 2 years old was brought by his parents to Olean, N. Y.

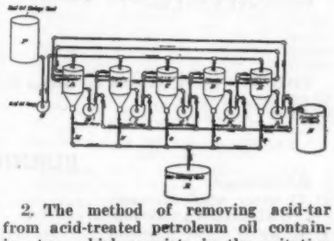
Recent Patents

1,562,001. METHOD OF TREATING OIL. Paul W. Prutzman and Carl J. von Bibra, Los Angeles, Calif., assignors to General Petroleum Corp., Los Angeles, Calif., a Corporation of California. Filed September 2, 1922. Serial No. 586,042. 1 Claim. (Cl. 196—147.)



The method of decolorizing oil which consists in preparing a mass of pulverulent solid decolorizing material in the form of an aqueous mud, whereby air is excluded from the pores of the decolorant, mixing such mud with the oil to be decolorized and heating the mixture until the water is driven out of the aqueous mud, whereby the solid decolorizing material is brought into intimate contact with the oil, and finally separating the spent solid decolorant from the decolorized oil.

1,562,000. PROCESS FOR REMOVING ACIDS FROM OILS. Paul W. Prutzman and Paul D. Barton, Los Angeles, Calif., assignors to General Petroleum Corp., Los Angeles, Calif., a Corporation of California. Filed September 2, 1922. Serial No. 586,040. 2 Claims. (Cl. 196—147.)



2. The method of removing acid-tar from acid-treated petroleum oil containing tar, which consists in the agitation

(Continued on Page 144)

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Dec. 1		Nov. 24		Nov. 17	
OKLAHOMA (Group 3)—						
50-52 450 end point	.09	.09¼	.08½	.09	.08½	.08¾
56-58 450 end point	.09½	.09¾	.09½	.09¾	.09½	.09¾
58-60 437 end point (U. S. Motor)	.10¼	.10½	.10		.10	
60-62 400 end point	.11¾	.12	.11½	.11¾	.11½	.11¾
64-66 375 end point	.12½	.12¾	.12½	.12¾	.12½	.12¾
68-70 350 end point	.13½	.13¾	.13½	.13¾	.13¼	.13¾
KANSAS—						
58-60 437 end point (U. S. Motor)	.10½	.10¾	.10¼		.10	.10¼
NORTH TEXAS—						
48-52 450 end point (Naphtha)	.08¾	.09	.08½		.08¼	.08½
50-52 440 end point (Naphtha)	.09	.09¼	.08½	.08¾	.08½	.08¾
56-58 450 end point	.09½	.09¾	.09½	.09¾	.09⅝	.09⅝
58-60 437 end point (U. S. Motor)	.10¼		.10		.09⅞	.10
60-62 400 end point	.11⅝	.11⅞	.11½	.11⅞	.11⅝	.11⅝
64-66 390 end point	.12¼	.12½	.12¼	.12½	.12¼	.12½
64-66 375 end point	.12⅝	.12¾	.12½	.12⅞	.12½	.12¾
68-70 360 end point	.13½		.13¼	.13½	.13¼	.13½
NORTH LOUISIANA—						
56-58 450 end point	.10	.10¼	.10	.10¼	.10	.10¼
58-60 437 end point (U. S. Motor)	.10½	.10¾	.10¼	.10½	.10¼	
60-62 400 end point	.12		.11¾	.12	.11¾	.12
64-66 390 end point	.12¼	.12¾	.12½	.12¾	.12½	.12¾
64-66 375 end point	.12¾	.13	.12¾	.13	.12¾	.13
ARKANSAS—						
58-60 450 end point	.10¼	.10½	.10	.10¼	.09¾	.10
58-60 437 end point (U. S. Motor)	.10½	.10¾	.10¼	.10½	.10¼	
64-66 375 end point	.12¾		.12¾	.13	.12¾	.13
ROCKY MOUNTAIN STATES—						
*58-60 437 end point (U. S. Motor)	.13¼	.13½	.13	.13¼	.13	.13¼
PENNSYLVANIA—						
52 Naphtha	.11	.11¼	.11	.11¼	.11	.11¼
54 Naphtha	.11¼	.11½	.11¼	.11½	.11¼	.11½
56 Naphtha	.11½	.11¾	.11½	.11¾	.11½	.11¾
58 Naphtha	.12	.12¼	.12	.12¼	.11¾	.12
60 Gasoline	.12¾	.13	.12¾	.13	.12¾	.13
62 Gasoline	.13½	.14	.13½	.14	.13½	.14
64 Gasoline	.15	.15¼	.15	.15¼	.15	.15¼
66 Gasoline	.16	.16¼	.16¼	.16½	.16¼	.16½
68-70 Gasoline	.19½	.20	.19½	.20	.19½	.20
CALIFORNIA—						
54-58 437 end point (U. S. Motor) domestic	.09	.09½	.09	.09½	.09	.09½
CHICAGO DIST. (Based on Group 3)—						
50-52 450 end point (Naphtha)	.09¼	.09½	.08¾	.09	.08¾	
56-58 450 end point	.09½	.09¾	.09½	.09¾	.09¼	.09½
58-60 437 end point (U. S. Motor)	.10¼		.10	.10¼	.09¾	.10
60-62 400 end point	.11¾	.12	.11½	.11¾	.11½	.11¾
64-66 375 end point	.12⅝	.13	.12½	.12⅞	.12½	.12¾
68-70 360 end point	.13¾	.14	.13½	.13¾	.13½	.14

*Colorado points.

NATURAL GASOLINE

	Dec. 1		Nov. 24		Nov. 17	
OKLAHOMA (Group 3)—						
Grade Double A, 80-87.9, 375 e.p., rec. 90%	.11¼		.11¼	.11½	.11½	
Grade A, 72-79.9, 375 end point, rec. 90%	.11¼		.11¼	.11½	.11½	
Grade Double B, 84-92, 375 e.p., rec. 85%	.10¼	.10½	.10¼	.10½	.10¼	.10½
Grade B, 76-83.9, 375 end point, rec. 85%	.10¼	.10½	.10¼	.10½	.10¼	.10½
Grade C, 80-90, 375 end point, rec. 78%	.09¼		.09	.09¼	.09¼	
NORTH TEXAS—						
Grade Double A, 80-87.9, 375 e.p., rec. 90%	.11¼	.11¼	.11¼	.11½	.11½	.11⅜
Grade A, 72-79.9, 375 end point, rec. 90%	.11¼	.11½	.11¼	.11½	.11½	.11¾
Grade Double B, 84-92, 375 e.p., rec. 85%	.10¼	.10½	.10¼	.10½	.10¼	.10½
Grade B, 76-83.9, 375 end point, rec. 85%	.10¼	.10½	.10¼	.10½	.10¼	.10½
Grade C, 80-90, 375 end point, rec. 78%	.09¼	.09½	.09	.09¼	.09¼	.09½
NORTH LOUISIANA—						
Grade A, 72-79.9, 375 end point, rec. 90%	.11⅜	.12	.11¼	.11½	.12	
Grade B, 76-83.9, 375 end point, rec. 85%	.11¼	.11½	.10⅝	.11	.11¼	.11½
Grade C, 80-90, 375 end point, rec. 78%	.10	.10¼	.10	.10¼	.10	.10¼
CALIFORNIA—						
78-85 absorption, 360-390 end point	.13	.13½	.13	.13½	.13	.13½
78-84 compression, 350 end point	.13	.13½	.13	.13½	.13	.13½
CHICAGO DIST. (Based on Group 3)—						
Grade Double A, 80-87.9, 375 e.p., rec. 90%	.11¼	.11½	.11¼	.11½	.11½	.11¾
Grade A, 72-79.9, 375 end point, rec. 90%	.11¼	.11½	.11¼	.11½	.11½	.11¾
Grade Double B, 84-92, 375 e.p., rec. 85%	.10	.10¼	.10¼	.10½	.10¾	.11
Grade B, 76-83.9, 375 end point, rec. 85%	.10	.10¼	.10¼	.10½	.10¾	.11
Grade C, 80-90, 375 end point, rec. 78%	.09	.09¼	.09¼	.09½	.09½	.09¾

MOTOR NATURAL GASOLINE (BLENDS)

	Dec. 1		Nov. 24		Nov. 17	
OKLAHOMA (Group 3)—						
60-62 450 end point	.09¾	.10	.09½	.09¾	.09½	.09¾
64-66 437 end point	.10¾	.11	.10¾	.11	.10½	.10¾
NORTH TEXAS—						
58-60 450 end point	.09½	.09¾	.09½	.09¾	.09½	.09¾
PENNSYLVANIA—						
*60-62	.13½	.13¾	.13½	.13¾	.13½	.13¾
*64-66	.13¾	.14	.13¾	.14	.13¾	.14
*66-68	.13¾	.14	.13¾	.14	.13¾	.14
*68-70	.14	.14½	.14	.14½	.14	.14½
CHICAGO DIST. (Based on Group 3)—						
60-62 450 end point	.09¾	.10	.09½	.09¾	.09½	.09½
64-66 437 end point	.10¾	.11	.10½	.10¾	.10¼	.10½

*At Sistersville, W. Va.

BURNING OILS

	Dec. 1		Nov. 24		Nov. 17	
KANSAS—						
41-43 water white Kerosene	.05¼	.05½	.05¼	.05½	.05¼	.05½
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.05	.05⅛	.05	.05¼	.05	.05¼
42-44 water white Kerosene	.05½		.05½		.05⅝	.05⅝
40-41 prime white Kerosene	.04⅞	.05	.04⅞	.05	.04⅞	.05
NORTH LOUISIANA—						
41-43 prime white Kerosene	.05½	.05¾	.05¼	.05½	.05¼	.05¼
42-44 water white Kerosene	.05¾	.06	.05½	.05¾	.05½	.05¾
ROCKY MOUNTAIN STATES—						
*40-44 water white Kerosene	.08	.08⅛	.08	.08¼	.08	.08¼
NORTH TEXAS—						
41-43 water white Kerosene	.05½	.05¼	.05	.05⅛	.05	
40-42 prime white Kerosene	.04¾	.05	.04¾	.05	.04¾	.05
41-43 prime white Kerosene	.04⅞	.05	.04¾	.05	.04¾	.05
42-44 water white Kerosene	.05½		.05½		.05¼	.05½
ARKANSAS—						
41-43 water white Kerosene	.05¾	.05⅞	.05½	.05¾	.05½	.05¾
42-44 water white Kerosene	.06		.05¾		.05¾	
PENNSYLVANIA—						
43 Kerosene prime white	.07	.07¼	.07	.07¼	.06¼	.06½
45 Kerosene water white	.07¼	.07½	.07¼	.07½	.07¼	.07½
46 Kerosene water white	.07½	.07¾	.07½	.07¾	.07½	.07¾
47 Kerosene water white	.08	.08¾	.08	.08¾	.08	.08¼
34 Neutral	.07¼	.07½	.07¼	.07½	.07¼	.07½
34 Sundebloom Neutral	.08	.09	.08	.09	.08	.09
36 Miners' Neutral	.06¾	.07	.06¾	.07	.06¾	.07
300 Mineral Seal	.07¾	.08	.07½	.07¾	.07¼	.07½
CALIFORNIA—						
40-42 water white (high burning test)	.07½	.08	.07½	.08	.07½	.08
Engine distillate, 43-45, 445 end point	.06½	.07	.06½	.07	.06½	.07
Engine distillate, 42-44, 450 end point	.06¼	.06½	.06¼	.06½	.06¼	.06½
CHICAGO DIST. (Based on Group 3)—						
41-43 water white Kerosene	.05¼	.05⅜	.05	.05¼	.05	.05¼
42-44 water white Kerosene	.05¼	.05⅜	.05⅜	.05⅜	.05¼	.05½

*Colorado points.

FUEL OILS

	Dec. 1		Nov. 24		Nov. 17	
KANSAS—						
24-26 Fuel Oil	1.30	1.35	1.30	1.35	1.30	1.35
32-36 Gas Oil	.03⅝	.03¾	.03½	.03¾	.03⅝	.03¾
38-40 Distillate	.04⅛	.04¼	.04⅛	.04¼	.04⅛	.04¼
OKLAHOMA (Group 3)—						
Below 22 Fuel Oil (sellers' cars)	1.20	1.22½	1.17½	1.20	1.15	1.20
22-26 Fuel Oil (sellers' cars)	1.22½	1.25	1.20	1.22½	1.22½	1.25
24-26 Fuel Oil (buyers' cars)	1.25	1.30	1.25		1.25	
24-26 Fuel Oil (sellers' cars)	1.25	1.30	1.25		1.25	
28-30 Fuel Oil (sellers' cars)	1.35		1.30	1.35	1.30	1.35
32-36 Gas Oil (dark)	.03½	.03⅝	.03½	.03⅝	.03½	.03⅝
32-36 Gas Oil (light)	.03⅝	.03¾	.03⅝	.03¾	.03⅝	.03¾
36-38 Distillate	.03¾	.04	.03¾	.04	.03¾	.04
38-40 Straw Distillate	.04	.04¼	.04	.04¼	.04	.04¼
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	1.35	1.45	1.30	1.32½	1.30	1.32½
26-30 Fuel Oil	1.45		1.35		1.35	
32-36 Gas Oil (dark)	.03½	.03⅝	.03½	.03⅝	.03½	.03⅝
32-36 Gas Oil (light)	.03½	.03⅝	.03½	.03⅝	.03½	.03⅝
38-40 Straw Distillate	.03⅞	.04	.03⅞	.03⅞	.03⅞	.04
NORTH LOUISIANA—						
18-20 Fuel Oil	1.05	1.10	1.00	1.05	1.00	1.05
32-36 Gas Oil	.03¾		.03¾		.03¾	
ARKANSAS—						
38-40 Distillate	.04	.04¼	.04¼	.04⅜	.04¼	.04⅜
32-36 Gas Oil	.03⅝	.03¾	.03¾	.04	.03¾	.04
22-26 Refinery Fuel Oil	1.25		1.20		1.20	
GULF COAST (South Texas)—						
Gas Oil	.04½	.04¾	.04½	.04¾	.04½	.04¾
Fuel Oil	1.55	1.60	1.55	1.60	1.45	1.50
PENNSYLVANIA—						
30-34 Fuel Oil	.05½	.05¾	.05½	.05¾	.05¼	.05½
36-40 Fuel Oil	.06	.06¼	.06	.06¼	.05½	.05¾
CALIFORNIA—						
33-36 Distillate	.04¾	.05	.04¾	.05	.04¾	.05
27-35 Distillate	.04	.04½	.04	.04½	.04	.04½
15-20 Fuel Oil (at tidewater)	1.00	1.04	1.00	1.04	1.00	1.04
27 plus Diesel Oil	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DIST. (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars, Group 3)	1.30	1.35	1.25	1.27½	1.20	1.25
18-22 (El Dorado)	1.25	1.30	1.20	1.25	1.15	1.20
18-20 (Smackover)	1.00	1.05	1.05	1.07½	1.05	1.10
32-36 Gas Oil	.03⅜	.03¾	.03½	.03¾	.03½	.03¾
36-38 Distillate	.03⅝	.03¾	.03⅝	.03¾	.04	.04¼
38-40 Straw Distillate	.04	.04¼	.04	.04⅛	.04	.04¼

LUBRICATING OILS AND WAX

	Dec. 1		Nov. 24		Nov. 17	
OKLAHOMA (Group 3)—						
70-80 vis., 2½ color, 20-25 cold test	.05	.05¼	.05	.05¼	.05	.05¼
100 vis., 3 color, 20-25 cold test	.04¾	.05	.04¾	.05	.04¾	.05
100 vis., 2 color, 20-25 cold test	.05	.05½	.05	.05½	.05	.05½
150 vis., 3 color, 20-25 cold test	.08½	.09	.08½	.09	.08½	.09
150 vis., 4 color, 20-25 cold test	.08¾	.08¾	.08¼	.08¾	.08¼	.08¾
180 vis., 4 color, 23-28 cold test	.09	.09½	.09	.09½	.09	.09½
180 vis., 3 color, 23-28 cold test	.09¼	.09¾	.09¼	.09¾	.09¼	.09¾
200 vis., 3 color, 23-28 cold test	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
200 vis., 4 color, 23-28 cold test	.10	.10½	.10	.10½	.10	.10½
220 vis., 3 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
220 vis., 4 color, 25-30 cold test	.13	.13½	.13	.13½	.13	.13½
240 vis., 3 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
240 vis., 4 color, 25-30 cold test	.13	.13½	.13	.13½	.13	.13½
280 vis., 3 color, 25-30 cold test	.15½	.16	.15½	.16	.15½	.16
280 vis., 4 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
Red Neutrals:						
180 vis., 5 color, 23-28 cold test	.08¾	.09¼	.08¾	.09¼	.08¾	.09¼
180 vis., 6 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
200 vis., 5 color, 23-28 cold test	.09¾	.10¼	.09¾	.10¼	.09¾	.10¼
200 vis., 6 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
220 vis., 5 color, 25-30 cold test	.13	.13½	.13	.13½	.13	.13½
220 vis., 6 color, 25-30 cold test	.12½	.13	.12½	.13	.12½	.13
240 vis., 5 color, 25-30 cold test	.12½	.13	.12½	.13	.12½	.13
240 vis., 6 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
280 vis., 5 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

Cylinder Stocks:						
180-200 vis., S. R. green, 40-45 cold test	.08	.08½	.08	.08½	.08	.08½
190-200 vis., S. R. green, 40-45 cold test	.07	.07½	.07	.07½	.07	.07½
170-190 dark green, 40-45 cold test	.05½	.06	.05½	.06	.05½	.06
600, steam refined	.06	.08	.08		.10	
190-200 vis. @ 210 "D" Bright Stock	.33	.35	.33	.35	.33	.35
200-210 vis. @ 210 "E" Bright Stock	.30		.30		.30	
150 vis. @ 210 "E" Bright Stock	.27		.27		.27	
150 vis. @ 210 "D" Bright Stock	.28		.28	.31	.28	.31
Waxes:						
124-126 White Crude Scale Wax	.05½		.05½		.05½	
PENNSYLVANIA—						
150, 3 color	.17¼		.17¼		.17¼	
180, 3 color	.21½		.21½		.21½	
200, 3 color	.24¼		.23½		.23½	
220, 3 color	.27		.25		.25	
600, steam refined	.17		.17		.16	
635, steam refined	.22		.22		.21	
650, steam refined	.24		.24		.23	
600, Pennsylvania flash	.27		.27		.26	
630, Pennsylvania flash	.35		.35		.35	
*550, E filtered	.19½		.19½		.19½	
600, E filtered	.20½		.20½		.20½	
*600, E filtered	.21		.21		.21	
600, D filtered	.26		.26		.26	
550, E filtered	.19		.19		.19	
550, D filtered	.22½		.22½		.22½	
Pennsylvania Bright Stock	.39½		.39		.39	
122-124 White Crude Scale Wax	.05¾	.06	.05¾	.06	.05¾	.06
†124-126 White Crude Scale Wax	.06	.06¼	.06	.06¼	.06	.06¼

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—						
Zero Black	.06	.07	.06	.07	.06	.07
No. 2 color, 100 vis., pale oil	.07	.08	.07	.08	.07	.08
No. 2½ color, 150 vis., pale oil	.09½	.10	.09½	.10	.09½	.10
No. 3 color, 200 vis., pale oil	.12	.12½	.12	.12½	.12	.12½
No. 3½ color, 300 vis., pale oil	.15½	.16	.15½	.16	.15½	.16
No. 3¾ color, 500 vis., pale oil	.18½	.19	.18½	.19	.18½	.19
No. 4 color, 750 vis., pale oil	.20	.20½	.20	.20½	.20	.20½
No. 1½ plus color, 150 vis., pale filtered	.21½		.21½		.21½	
No. 2 plus color, 200 vis., pale filtered	.23		.23		.23	
No. 2 color, 300 vis., pale filtered	.27		.27		.27	
No. 2½ color, 500 vis., pale filtered	.31		.31		.31	
No. 2½ color, 750 vis., pale filtered	.41		.41		.41	
No. 5 to 6 color, 200 vis., red oil	.10½	.11	.10½	.11	.10½	.11
No. 5 to 6 color, 300 vis., red oil	.12½	.13	.12½	.13	.12½	.13
No. 5 to 6 color, 500 vis., red oil	.14½	.15	.14½	.15	.14½	.15
No. 5 to 6 color, 750 vis., red oil	.18	.18½	.18	.18½	.18	.18½
CALIFORNIA—						
130 pale, 2½-3 color	.12	.12½	.12	.12½	.12	.12½
200 vis., 2½-3 color	.15½	.16	.15½	.16	.15½	.16
300 vis., 3 -3½ color	.17	.17½	.17	.17½	.17	.17½
350 vis., 3½-4 color	.18½	.19	.18½	.19	.18½	.19
400 vis., 3½-4 color	.20	.20½	.20	.20½	.20	.20½
Red Neutrals:						
200 vis., 4½-5 color	.14	.14½	.14	.14½	.14	.14½
300 vis., 5 -6 color	.15	.15½	.15	.15½	.15	.15½
400 vis., 5 -6 color	.17	.17½	.17	.17½	.17	.17½
500 vis., 4½-5 color	.20	.21	.20	.21	.20	.21
500 vis., 6 -6½ color	.18	.19	.18	.19	.18	.19
600 vis., 6½ plus color	.19	.19½	.19	.19½	.19	.19½

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK DOMESTIC MARKET

Bayonne Refinery Prices:	Dec. 1	Nov. 24	Nov. 17
U. S. Motor Gasoline, 58-60, 437	.12½	.12½	.12½
Export Gasoline, 64-66 Be.	.15½	.15½	.15½
*Bunker Oil, 14-16 Be.	1.65	1.65	1.65
*Diesel Oil, New York City	2.10	2.10	2.10
Furnace Oil, New York City	.10	.10	.10
Gas Oil, 32-36 Be.	.06¼	.06¼	.06¼
41-43 Kerosene prime white	.06¾	.06½	.06½

*Lighterage, 6.5c a barrel extra.

NEW YORK EXPORT PRICES

Motor Gasoline:	Dec. 1	Nov. 24	Nov. 17
58-60 Be. gravity, in cases	.27.15	.27.15	.27.15
Standard white Kerosene, in cases	.17.40	.17.40	.17.15
Water white Kerosene, in cases	.18 40	.18.40	.18.15
†Lubricating Oils (in bulk):			
Cylinder Stock, extra filtered, 600 bbls.	.34	.34	.34
Cylinder Stock, light filtered, 600 bbls.	.29	.29	.29
No. 1 White Neutral, .878 spec. grav.	.36	.36	.36
No. 5 Bright Stock, .897 spec. grav.	.40½	.40½	.40½
Special "A" red oil, .897 spec. grav., 170 vis.	.11½	.11½	.11½
No. 2 red oil, .903 spec. grav., 212 vis.	.12	.12	.12
No. 1 red oil, .905 spec. grav., 265 vis.	.13½	.13½	.13½
Polar red oil, .903 spec. grav., 295 vis.	.14	.14	.14
Pale oil, "25" .898 spec. grav.	.12	.12	.12
Pale oil, "28" .892 spec. grav.	.08	.08	.08
Paraffin Wax:			
120-122 a.m.p., per lb.	.06¼	.06½	.06½
125-127 a.m.p., per lb.	.06¾	.06¾	.06¾
130-132 a.m.p., per lb.	.06⅝	.06⅝	.06⅝
135-137 a.m.p., per lb.	.07¼	.07¼	.07¼
Petrolatum, in bbls., carload lots, per lb.:			
Amber	.03¼	.03¼	.03¼
Light amber	.03¾	.03¾	.03¾
Snow white	.10	.10	.10
Lily white	.08	.08	.08
Cream	.06	.06	.06

†All lub prices in barrels.

LOS ANGELES EXPORT PRICES

	Dec. 1		Nov. 24		Nov. 17	
Kerosene water white	.05	.05½	.05	.05½	.05	.05½
U. S. Motor Gasoline, 54-56 437 end point	.07½	.09	.07½	.09	.07½	.09

CRUDE OIL PRICES

Arkansas and North Louisiana

Caddo, 38° and above	$1.95
35° to 37.9°	1.85
32° to 34.9°	1.75
Below 32°	1.65
Homer, 35° and above	1.75
32° to 34.9°	1.65
31° to 32.9°	1.55
Below 31°	1.40
Haynesville, 33° and above	1.65
Below 33°	1.55
El Dorado, 33° and above	1.65
Below 33°	1.55
Bull Bayou, 38° and above	1.75
35° to 37.9°	1.60
32° to 34.9°	1.45
Cotton Valley	1.10
De Soto	1.80
Crichton	1.60
Bellevue	1.65
*Stephens, Ark:	
Below 26°	1.20
26° and above	1.40

*Posted by Atlantic Oil Producing Co.

Smackover: (Standard Oil Co. of Louisiana)	
Below 24°	.85
24° to 24.9°	1.15
25° to 25.9°	1.20
26° to 26.9°	1.25
27° and above	1.30
(Atlantic Oil Producing Co.)	
Below 23°	.90
23° to 23.9°	.95

Wyoming, Montana, New Mexico and Colorado

Rock Creek (Wyo.)	1.75
Salt Creek:	
29° to 29.9	1.23
30° to 30.9°	1.31
31° to 31.9°	1.39
32° to 32.9°	1.47
33° to 33.9°	1.55
34° to 34.9°	1.63
35° to 35.9°	1.71
36° to 36.9°	1.79
37° and above	1.87
Big Muddy	1.75
Mule Creek	1.25
Grass Creek (light)	1.90
Elk Basin	1.90
Lance Creek	1.90
Osage	1.90
Cat Creek (Mont.)	1.90
Sunburst (Mont.)	1.55
Lost Soldier	1.10
Greybull and Torchlight	1.90
Hamilton Dome	1.55
Hogback, (N. Mex.)	1.95
Artesia, (N. Mex.)	1.35
Florence (Colo.)	1.35

Lost Soldier and Lander based on contracts.

Oklahoma, Kansas, North and East Central Texas

*Prairie Oil & Gas Co. and other major purchasing companies except as noted.

28° to 28.9°	1.15
29° to 29.9°	1.23
30° to 33.9°	1.31
31° to 31.9°	1.39
32° to 32.9°	1.47
33° to 33.9°	1.55
34° to 34.9°	1.63
35° to 35.9°	1.71
36° to 36.9°	1.79
37° to 37.9°	1.87
38° to 38.9°	1.95
39° to 39.9°	2.03
40° to 40.9°	2.11
41° to 41.9°	2.19
42° to 42.9°	2.27
43° to 43.9°	2.35
44° to 44.9°	2.43

For crude under 28° gravity, bought only from producers having connections on November 1, 1925, Prairie Oil & Gas Co. pays on a basis of an 8-cent spread for each degree.

***Humble Oil & Refining Co.**

(North Texas, Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran.)

Below 28°	1.07

Other grades same as Prairie Oil & Gas.

***Magnolia Petroleum Co.**

(Oklahoma, Kansas and Texas.)

Below 28°	$1.07

Other grades same as Prairie Oil & Gas Co.

Corsicana heavy	$1.05
Thrall	1.00

***The Texas Co.**

(Oklahoma and Texas)

Below 28°	$1.07

Other grades same as Prairie Oil & Gas Co.

Panhandle: (Posted by Amarillo Refining Co.)

28° to 30.9°	.90
31° to 33.9°	1.05
34° to 36.9°	1.25
37° to 39.9°	1.45
40° and above	1.50

Gypsy Oil Co.—

Bristow, Glenn Pool, Morris and Perryman:

25° to 25.9°	.91
26° to 26.9°	.99
27° to 27.9°	1.07

Other grades same as Prairie Oil & Gas Co.

Gulf Coast

Grade A	1.50
Grade B	1.25
Luling (Magnolia)	1.40
Laredo (Magnolia Petroleum Co.)	.85
Lockhart (Magnolia)	2.25
Rockdale-Minerva (Milam County)	1.25
Callihan (Live Oak-McMullen)	2.05
Webb, Jim Hogg, Zapata	1.15
*High Island	1.20

*Posted by Sun Oil Co.

***Somerset**

Below 30°	1.25
30° to 32.9°	1.35
33° to 35.9°	1.80
36° to 38.9°	1.95
39° to 41.9°	2.10
42° and above	2.35

*Posted by Grayburg Oil Co.

Eastern States

Penna Grade Oil in New York Transit Lines	3.40
Bradford District Oil in National Transit Lines	3.40
Penna Grade Oil in National Transit Lines	3.30
Penna Grade Oil in Southwest Pa. Pipe Lines	3.30
Penna Grade Oil in Eureka Pipe Line Lines	3.25
Penna Grade Oil in Buckeye Pipe Line Lines	3.05
Cabell Grade Oil in Eureka Pipe Line Lines	2.10
Corning Grade Oil in Buckeye Pipe Line Lines	1.60
Somerset Medium Oil in Cumberland Pipe Line Lines	2.20
Somerset Light Oil in Cumberland Pipe Line Lines	2.35
Ragland Grade Oil in Cumberland Pipe Line Lines	1.15
Gaines	2.70
Lima	1.98
Wooster	2.00
Illinois	1.87
Indiana	1.78
Princeton	1.87
Plymouth	1.40
Waterloo	1.00
Oil Springs, Canada	2.45
Petrolia, Canada	2.38
*Western Kentucky, 36° and above	1.80
*Western Kentucky, 35° to 35.9°	1.70
*Western Kentucky, 32.9° and below	1.60
Cumberland, Barren and Monroe Counties (Kentucky), (Paragon Development Co.)	2.35

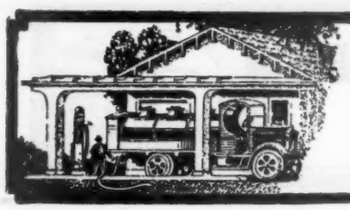
*Prices for Warren, Allen, Hancock, Simpson and Ohio Counties by Indian Refining Co.

Mexican Crude

*Tuxpam light (f.o.b. Mex. ports)	1.75
‡Panuco heavy (f.o.b. Mex. ports)	1.45
Tuxpam (New York)	2.25
Panuco (New York)	1.82

*Plus 30.45c tax. ‡16.94c tax.

(California Crude Prices on Page 142)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns, Dec. 1.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Chicago Dist.— †Less than 100 gals.	16.0	18.0	...	11.0
Decatur, Ill.	11.0	13.0	...	11.5
East St. Louis	15.1	17.35	...	10.6
Joliet	16.4	18.4	...	11.7
Peoria	10.5	12.5	...	11.7
Quincy	16.2	18.2	...	11.3
Davenport, Ia.	18.5	20.5	2.0	11.9
Des Moines	15.5	17.5	2.0	11.9
Keokuk	18.5	20.5	2.0	11.9
Sioux City	18.0	20.0	2.0	11.5
Duluth, Minn.	15.5	17.5	2.0	12.6
Minneapolis	15.2	17.2	2.0	12.6
La Crosse, Wis.	19.2	21.2	2.0	12.1
Milwaukee	18.1	20.1	2.0	11.3
Madison	18.3	20.3	2.0	11.5
Detroit, Mich.	18.8	20.8	2.0	12.2
Grand Rapids	18.7	20.7	2.0	12.1
Saginaw	18.9	20.9	2.0	12.3
Evansville, Ind.	19.0	21.0	3.0	11.5
Fort Wayne	19.4	21.4	3.0	11.9
Indianapolis	19.2	21.2	3.0	11.7
South Bend	19.4	21.4	3.0	11.9
Fargo, N. D.	19.9	21.9	1.0	14.6
Huron, S. D.	16.0	18.0	3.0	13.1
Sioux Falls	18.0	20.0	3.0	12.6
*K. C., Mo.	17.9	19.9	3.0	10.3
*Springfield	18.8	20.8	3.0	11.2
*St. Louis	17.6	19.9	2.5	11.0
*St. Joseph	18.0	20.0	2.5	10.9
Wichita, Kan.	10.8	12.8	2.0	10.8
Bartlesville, Ok.	16.9	18.9	3.0	9.9

*State tax is 2c. Remainder is city tax. †Quantity price on more than 100 gallons, 15.0.

The following monthly rebate system is effective on tank wagon schedules throughout the territory of the Standard Oil Co. of Indiana: Over 750 gallons, ¼ cent; over 3,000 gallons, ⅜ cent; over 3,000 gallons, 1 cent; over 6,000 gallons, 1½ cents; over 10,000 gallons, 2 cents. If quantity bought during the year is equal to 12 times the monthly agreed purchases the discount will be paid or credited on the entire quantity less monthly payments. Service station customers will receive discount of 1 cent a gallon on purchases amounting to 200 gallons a month or 2,400 gallons a year; and 2 cents a gallon on 600 gallons a month or 7,200 gallons a year.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Newark, N. J.	15.0	17.5	...	13.5
Atlantic City	15.0	....	...	13.5
Annapolis, Md.	17.0	....	...	12.0
Baltimore	17.0	20.0	2.0	10.0
Cumberland	17.0	20.0	2.0	13.5
Washington	17.0	20.0	2.0	12.5
Norfolk, Va.	18.0	21.0	3.0	13.5
Petersburg	18.0	....	3.0	13.5
Danville	18.0	....	3.0	13.5
Richmond	18.0	21.0	3.0	13.5
Roanoke	18.0	21.0	3.0	13.5
Keyser, W. Va.	17.5	....	3.5	13.5
Charleston	18.5	21.5	3.5	13.5
Parkersburg	18.5	21.5	3.5	13.5
Wheeling	18.5	21.5	3.5	13.5
Charlotte, N. C.	19.0	22.0	4.0	13.5
Hickory	19.0	....	4.0	13.5
Mt. Airy	19.0	....	4.0	13.5
Salisbury	19.0	....	4.0	13.5
Charleston, S. C.	20.0	23.0	5.0	13.5
Columbia	20.0	23.0	5.0	13.5

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Atlanta, Ga.	21.0	24.0	3.5	13.0
Augusta	22.0	25.0	3.5	14.5
Macon	22.0	25.0	3.5	13.5
Savannah	17.0	20.0	3.5	13.0
Birm'gham, Ala.	19.0	22.0	2.0	14.5
Mobile	18.0	21.0	2.0	11.0
*Montgomery	20.0	23.0	3.0	15.5
Clarksdale, Miss.	19.0	22.0	3.0	12.0
Jackson	19.0	22.0	3.0	11.0
Natchez	18.5	21.5	3.0	11.5
Vicksburg	18.5	21.5	3.0	11.5
Jacksonville, Fla.	20.0	23.0	4.0	13.0
Miami	22.0	25.0	4.0	14.5
Pensacola	20.0	23.0	4.0	13.5
Tampa	20.0	23.0	4.0	13.0
Lexington, Ky.	18.0	21.0	3.0	14.0
Covington	19.0	22.0	3.0	14.0
Louisville	20.0	23.0	3.0	12.0

*In addition to the State tax of 2 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and ½ cent on kerosene.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
*Pittsburg, Pa.	17.0	22.0	...	14.0
*Philadelphia	17.0	22.0	...	14.0
*Scranton	17.0	22.0	...	14.0
*Allentown	17.0	22.0	...	14.0
Altoona	17.0	22.0	...	14.0
*Erie	17.0	22.0	...	14.0
Dover, Del.	19.0	22.0	2.0	14.0
Wilmington	19.0	22.0	2.0	14.0
Springf'ld, Mass.	16.0	19.0	...	13.0
Worcester	16.0	19.0	...	13.0
Boston	16.0	19.0	...	13.0
Providence, R. I.	17.0	20.0	1.0	13.0
Hartford, Conn.	18.0	21.0	2.0	12.0
New Haven	18.0	21.0	2.0	12.0

*Pennsylvania tax of 2 cents is collected by the dealer and paid by him direct to the State.

SOUTHWESTERN DISTRICT

***Magnolia Petroleum Co.**

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Dallas, Tex.	17.0	19.0	1.0	11.0
Fort Worth	14.0	16.0	1.0	10.0
Houston	17.0	19.0	1.0	12.0
San Antonio	16.0	18.0	1.0	10.0
El Paso	18.0	19.0	1.0	13.0
Texarkana	16.0	20.0	1.0	12.5
Muskogee, Okla.	18.0	21.0	3.0	11.0
Oklahoma City,	18.0	21.0	3.0	12.0
Tulsa	18.0	21.0	3.0	12.0
Little Rock	17.5	20.5	4.0	10.0
Ft. Smith, Ark.	18.0	21.0	4.0	11.0

*The following is the schedule of discounts on gasoline adopted by the Magnolia Petroleum Co. in Texas sales and the discounts are graded according to gallonage: Over 750 gallons a month, ½ cent; over 2,000 gallons, ⅝ cent; over 3,000 gallons, 1 cent; over 6,000 gallons, 1½ cents; over 10,000 gallons, 2 cents; over 3,000 gallons a year, ½ cent; over 24,000 gallons a year, ⅝ cent; over 36,000 gallons a year, 1 cent; over 72,000 gallons a year, 1½ cents; over 120,000 gallons a year, 2 cents.

The schedule on service station deliveries is: Over 200 gallons a month, 1 cent; over 600 gallons a month, 2 cents; over 2,400 gallons a year, 1 cent; over 7,200 gallons a year, 2 cents.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Albany, N. Y.	18.0	....	...	14.5
*New York	17.0	....	...	14.5
Buffalo	18.0	....	...	14.5
Rochester	16.0	....	...	14.5
Syracuse	18.0	....	...	14.5
Boston, Mass.	17.0	....	...	....
Providence, R. I.	18.0	....	1.0	....
Augusta, Me.	20.0	....	3.0	14.5
Manchester, N. H.	19.0	....	2.0	14.5
Burlington, Vt.	20.0	....	2.0	14.5

*Price in steel barrels.

Note: Standard Oil Co. of New York does not generally quote service station price in its territory. In most cases the service station price is 2 or 3 cents higher than tank wagon price.

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
All Ohio points.	18.0	20.0	2.0	13.0

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Casper, Wyo.	19.5	21.5	2.5	13.0
Cheyenne	19.5	21.5	2.5	14.5
Albuquerque, N. Mex.	23.5	26.5	3.0	16.5
Salt Lake, Utah	22.0	24.0	3.5	18.0
Denver, Colo.	18.0	20.0	2.0	14.5
Pueblo	18.0	20.0	2.0	14.5
Butte, Mont.	21.0	21.0	2.0	16.0
Helena	23.0	25.0	2.0	17.0
Boise, Idaho	23.0	25.0	3.0	20.0

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
*New Orleans	16.5	19.5	3.0	10.5
Alexandria	16.0	19.0	2.0	11.5
Baton Rouge	15.0	18.0	2.0	10.0
LaFayette	16.0	19.0	2.0	11.0
Lake Charles	16.5	19.5	2.0	11.5
Shreveport, La.	15.0	18.0	3.0	10.5
Memphis, Tenn.	15.0	18.0	3.0	12.5
Chattanooga	16.0	19.0	3.0	13.0
Knoxville	17.0	20.0	3.0	13.5
Nashville	16.0	19.0	3.0	13.0
Bristol	17.5	20.5	3.0	13.0
Little Rock, Ark.	17.5	20.5	4.0	10.5

*Tax of 3 cents includes city tax of 1 cent.

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
San Francisco	16.0	20.0	2.0	15.5
Los Angeles	12.5	16.5	2.0	15.5
Fresno	16.5	20.5	2.0	17.5
Reno, Nev.	21.5	25.5	4.0	13.0
Portland, Ore.	17.0	21.0	3.0	16.5
Seattle, Wash.	16.0	20.0	2.0	16.5
Spokane	20.0	24.0	2.0	20.5
Tacoma	16.0	20.0	2.0	16.5
Phoenix, Ariz.	23.0	26.0	3.0	21.5

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Omaha	16.25	18.25	2.0	11.5
Crawford	19.0	....	2.0	12.25
McCook	19.75	21.75	2.0	13.0
Norfolk	18.75	20.75	2.0	12.0
North Platte	19.75	21.75	2.0	12.75
Scottsbluff	19.25	21.25	2.0	12.25

TANK WAGON PRICE CHANGES

November 24.—Standard Oil Co. of Nebraska advanced the tank wagon and service station price of gasoline 2 cents at Omaha.

November 25.—Standard Oil Co. of New York advanced kerosene 1 cent in New York State and a half cent in New England.

November 27.—Magnolia Petroleum Co. reduced tank wagon and service station prices of gasoline 1 cent at Oklahoma City, Tulsa and Muskogee.

November 30.—Standard Oil Co. of New York advanced gasoline prices 1 cent throughout territory except New York City and Long Island.

December 1.—Magnolia Petroleum Co. advanced tank wagon and service station prices of gasoline 1 cent at Oklahoma City, Tulsa and Muskogee.

CRUDE PRICE CHANGES

November 25.—Paragon Development Co. advanced Cumberland and Monroe County crudes 15 cents.

November 30.—Joseph Seep Purchasing Agency advanced Ragland crude 5 cents.

CALIFORNIA GASOLINE INVENTORIES INCREASE

LOS ANGELES, Calif., Nov. 28.—There has been no material changes in the marketing situation on the Pacific Coast during the past week. All oils are moving in about the same volumes in both the local and export trades, prices remaining unchanged.

According to figures just released by the United States Bureau of Mines, California refineries produced 159,481,499 gallons of gasoline during October. This is an increase of over 21,000,000 gallons or 15.45 per cent over the September output of this year and an increase of 62.66 per cent over the production of October, 1924. Gasoline stocks increased over 14,000,000 gallons during the month which is by far the largest increase in storage for several months. At the same time, however, the consumption during October was in excess of 145,000,000 gallons as compared to about 138,000,000 gallons in September, or an increase of over 7,000,000 gallons. At the end of the month there was over 395,500,000 gallons of gasoline in storage.

The very strong position held by the natural gasoline market is apparent after a study of figures relating to this commodity as published in the United States Bureau of Mines report. During October there was over 28,000,000 gallons of natural gasoline produced which is an increase of approximately 2,000,000 gallons over September production. In spite of this increased production stocks decreased during the month by over 45,000 bbls. This means that the consumption during October was 713,496 bbls. as compared to 664,055 bbls. in September, or an increase of 49,441 bbls. during the month. At the end of October there was 74,849 bbls. of natural gasoline in storage. At the rate of consumption during October, this storage would last just over three days. It is very evident from the figures that natural gasoline is a much sought-after commodity and is being utilized just as fast as it can be produced.

During October there was 10,000,000 bbls. of fuel oil, gas oil and heavy crude consumed, which is an increase of close to 2,000,000 bbls. over September consumption. This is a decided help to the industry for in spite of an increased production of close to 17,000,000 gallons during the month, less than 2,000,000 bbls. were added to storage while during the last several months stocks of these commodities have increased by more than 3,000,000 bbls. each month.

CALIFORNIA PRICES

Gravity	Long Beach	Richfield Huntington Beach Brea-Olinda	Rosecrans	Torrance Inglewood	Whittier La Habra Montebello	Coyote	Santa Fe	Kern River Newhall McKittrick	Midway-Sunset Elk Hills	Lost Hills Belridge	Coalinga	Wheeler Ridge
14°	$ .85	$ .85	....	$ .85	$ .85	$ .85	....	$ .75	$ .75	$ .75	$ .75	$ .75
15°	.87	.87	....	.87	.85	.85	....	.75	.75	.75	.75	.75
16°	.90	.90	....	.90	.85	.85	....	.75	.75	.75	.75	.75
17°	.94	.94	....	.94	.85	.85	....	.75	.75	.75	.75	.75
18°	.98	.98	....	.98	.85	.85	....	.75	.75	.75	.75	.75
19°	1.02	1.02	....	1.02	.85	.85	....	.75	.75	.75	.75	.78
20°	1.06	1.06	....	1.06	.87	.88	....	.79	.79	.79	.79	.81
21°	1.10	1.10	....	1.10	.89	.94	....	.84	.84	.84	.84	.84
22°	1.14	1.14	....	1.14	.91	1.00	....	.92	.92	.89	.89	.87
23°	1.18	1.18	....	1.18	.94	1.06	....	1.00	1.00	.94	.94	.90
24°	1.22	1.22	....	1.22	.97	1.12	.97	1.08	1.08	.99	.99	.93
25°	1.26	1.26	....	1.26	1.00	1.18	1.05	1.16	1.16	1.04	....	.96
26°	1.30	1.30	$1.30	1.30	1.03	1.24	1.13	1.24	1.24	1.09	....	.99
27°	1.34	1.34	1.34	1.34	1.06	1.30	1.21	1.32	1.32	1.14	....	....
28°	1.38	1.38	1.38	1.38	1.09	1.36	1.28	1.40	1.40	1.19	....	....
29°	1.42	1.42	1.42	....	1.12	1.42	1.34	1.48	1.48	1.24	....	....
30°	1.46	1.46	1.46	....	1.15	1.48	1.40	1.56	1.56	1.29	....	....
31°	1.52	....	1.52	....	....	....	1.46	1.64	1.64	1.34	....	....
32°	....	....	1.58	....	....	....	1.52	1.72	1.72	1.39	....	....
33°	....	....	1.64	....	....	....	1.60	1.80	1.80	1.44	....	....
34°	....	....	1.70	....	....	....	1.68	....	1.88	1.49	....	....
35°	....	....	1.76	....	....	....	1.76	....	....	1.54	....	....
36°	....	....	1.84	....	....	....	1.84	....	....	....	....	....
37°	....	....	1.92	....	....	....	1.92	....	....	....	....	....
38°	....	....	2.00	....	....	....	2.00	....	....	....	....	....
39°	....	....	2.08	....	....	....	....	....	....	....	....	....
40°	....	....	2.16	....	....	....	....	....	....	....	....	....
41°	....	....	2.24	....	....	....	....	....	....	....	....	....
42°	....	....	2.30	....	....	....	....	....	....	....	....	....

SINCLAIR OILS

THE SINCLAIR dealer is more than merely a customer of the Sinclair Refining Company. With each sale to him there goes the assurance of our help in his own selling problems, whenever he requests it. He is related to us as one Sinclair Department is to another.

The rapid growth of the Sinclair Refining Company is due largely to our close alliance with dealers. We can only grow as Sinclair dealers grow.

SINCLAIR REFINING COMPANY

NEW YORK
Sinclair Oil Bldg., 45 Nassau St.
Telephone: Rector 9320

CHICAGO
22nd and Rockwell Streets
Telephone: Crawford 2000

Cable Address: "Lucent"

Southern Oklahoma Plant Different

Operating on Low Gravity Crude Refinery Secures 27 Per Cent Gasoline. Skimming Accomplished by Pipe Still With Six Towers

By George W. Reid

Early in the spring of 1923 the Wilson, Okla., skimming plant of the Hewitt Refining Co. began operations. The plant at that time was in itself a marked departure from usual practice in skimming plant construction in that it embraced unique methods of assembly. The physical or mechanical equipment, though fabricated along the usual, conventional lines, was so assembled upon construction that the completed plant presented an unusual sight. Visiting oil men and friends of the organizers generally embraced an idea regarding the plant, similar to the story of the first steam locomotive—that "it never would run."

The company was organized by five men, sharing equally the burden of investment. Four of the organizers are producers of oil in the Hewitt Field, owning and operating a very productive lease about 3 miles from the refinery site. The fifth partner, E. E. Stuart of the Crystal Petroleum Co., Burkburnett, Texas, designed and constructed the plant and for several months acted in capacity of general manager.

The site chosen for the plant, 3 miles east of Wilson, Okla., along the railroad, made possible the erection of the refinery high upon the crest of a rounded hill. Because of this unusual location of the refinery, much of the oil and finished product transferring is accomplished by gravity flow, both with speed and economy.

The plant was constructed with an operating capacity of approximately 1,500 bbls. daily, this being the production of the lease or leases owned or controlled by the organizers. During the period of operation since the construction of the plant an average daily through put of approximately 1,200 bbls. has been maintained. All this crude oil through the period of over two years has been produced by the company's own wells and delivered to the refinery through its own 3-inch pipe line.

Use Pipe Still

The plant, as is shown in Figures 1 and 2, consists of a large pipe still, constructed of 3-inch pipe, 20 feet in length and consisting of 66 joints—or one-fourth mile of 3-inch pipe. The still is fired with two burners, through two separate Dutch ovens, extending 6 feet in front of the still wall. Just back of the pipe still is placed the horizontal heat exchanger, which was made from a second hand oil field boiler slightly larger than the usual oil field pot, and well insulated. The dome was left upon the boiler and equipped with a visible gauge glass. The dome extends down below the exchanger serving as a water trap for the crude being preheated in the interchanger. Draw off valves are attached through which the stillman draws off water and sludge as it accumulates and is indicated by the gauge glass. The interchanger is so constructed that the hot oil from the separator flows countercurrent to the incoming cool crude oil.

Back of the heat interchanger a vapor separator, 6 feet by 15 feet is installed. This is also well insulated. There is a swing of one inch chain suspended inside of the separator which keeps noisely swinging, due to the incoming surges of hot oil and vapors. This chain assists in the separation of the oil and vapor, in that it keeps the crude in motion or agitation, tending to break up the so-called "pockets," if any, and keeping whatever sediment enters the separator in suspension to be carried away with the fuel oil.

It is further arranged with a series of block valves that the exchanger may receive hot fuel oil direct from the separator or the hot oil and vapors direct from the pipe still. For obvious reasons the fuel oil is cooled by passing it through the exchanger.

A home made liquid level controlling device is placed between the separator and exchanger. This consists of a swing of 3-inch pipe, with expansion joints at each end, which is raised or lowered; thus governing the level of oil desired in the separator.

A 12-inch vapor line leads from the top of the separator to six towers connected in series, or tandem. The towers are in turn connected by 6-inch vapor lines, except the last two in the series which are connected by 4-inch vapor

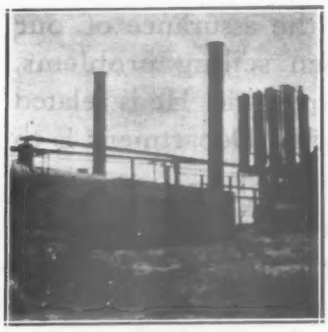


Figure 2—View of Hewitt refinery, showing pipe still, interchanger, separator and towers connected in series.

lines. The towers are 3 feet by 20 feet, of the baffle type, each equipped with 14 baffle plates, having one-fourth inch perforations. The plates are 1 foot apart, leaving a void of 3 feet at the bottom and top of each tower.

Aerial Condenser

The condenser coils are 2-inch, aerial, water spray type. A 3-inch coil is submerged under water in the pit for further cooling the fuel oil as it leaves the interchanger.

Two shell stills are provided for rerunning, being 8 feet by 20 feet and well insulated. Each of these stills has

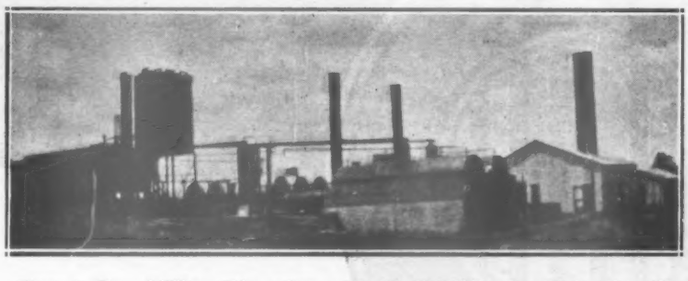


Figure 1—View of Wilson, Okla., refinery of the Hewit Refining Co., showing pipe still with towers and two rerun shell stills.

one tower of the same dimensions and construction as those comprising the series of towers. The shell stills are charged by back trap, of tower condensates which flow to the stills from a manifold arrangement under the tower platform. This arrangement provides for the selection of back trap of finished material, in such a manner that the tower condensate is either directed to the receiving house for inspection or as finished distillate, or it is diverted to the shell stills for subsequent redistillation.

The crude is pumped through the interchanger to the pipe still. This still is fired at sufficient temperature to vaporize all the desired distillate down through the gas oil cut—sufficient in fact, to leave a fuel oil residuum of the desired specifications—generally 24-26 gravity. The temperature required is about 550 to 565 degrees Fahrenheit on the oil at the point of entry into the separator. A recording thermometer is installed at this point to guide the fireman.

27 Per Cent Gasoline

All the vaporized condensates, what refiners sometimes term a 100 per cent cut, is separated in the separator, and led from there into the towers in series, where it is fractionated into the desired cuts, or fractions. Certain of these towers are equipped with steam jets to assist in the selective fractionation. Under present operation methods the six towers in series yield 22 per cent gasoline. This gasoline is derived from the overhead stream from the series of towers, and the back trap streams from the last two towers in the series—the sixth and fifth towers.

The condensate or back trap from towers 1, 2, 3, 4 in the series, is returned in one back trap line, by means of the manifold arrangement previously described, to the shell stills.

One shell still receives back trapped condensate while the other is being batched down. Efforts to hook up these stills for continuous operation have not been entirely successful, nor has semi-continuous operation been of more than indifferent success. The products of the shell stills consist of an additional 5 per cent gasoline, making a total of 27 per cent gasoline yield. Crude from the Hewitt Field is given 26.6 per cent gasoline—33.2 gravity crude—by the Bureau of Mines (Serial No. 2364). The next rerun product is 14 per cent kerosene of good color which usually can be marketed as water white 41-43 grade, untreated.

The still bottoms then consist of 9.5 per cent gas oil. From the entire operation the following products are received:

Gasoline, two grades	27.0%
Kerosene	14.0%
Gas oil	9.5%
Fuel oil	48.0%
	98.5%

The plant at present is producing but one grade of gasoline—a blend of all

is probable that due to these economies and advantages the company has been able to show a profit consistently since the first month of operation, June, 1923. George C. Crocket is plant superintendent.

RECENT PATENTS

(Continued from Page 139)

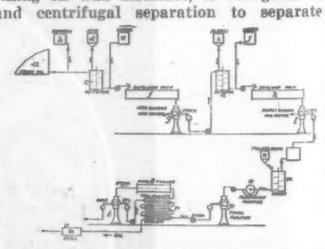
with such oil of a powdered adsorbent which adsorbent has previously expended its adsorptive value in removing impurities from tar-free oils and is charged with said tar-free oil.

1,562,425. METHOD OF PURIFYING HYDROCARBONS. Adolph Greenspan, Minatitlan, Vera Cruz, Mexico. Filed November 10, 1922. Serial No. 600,006. 1 Claim. (Cl. 196—19.)

A process of removing crystalline and amorphous wax from oil which consists in first causing crystallization of the crystalline wax at a temperature of between 80 and 90 degrees Fahrenheit by the addition of 15 to 20 per cent of kerosene, then mechanically separating the oil from the wax crystals, and then distilling off amorphous wax and kerosene from the separated oil until the residuum in the still is a high grade cylinder stock, substantially as described.

1,559,982. PROCESS OF PRODUCING WAX-FREE PRODUCTS FROM CRUDE PETROLEUM. Earl Petty, Winfield Kans., assignor to The De Laval Separator Company, New York, N. Y., a Corporation of New Jersey. Filed July 11, 1923. Serial No. 650,782. 7 Claims. (Cl. 196—20.)

2. The process of treating paraffin base crude mineral oil to obtain therefrom a wax-free low pour bright stock, which comprises subjecting the oil, without distilling off wax distillate, to refrigeration and centrifugal separation to separate



wax from the oil, distilling the wax-free oil to obtain therefrom distillates of different boiling points, diluting the residue with a low boiling point petroleum distillate, subjecting the thus formed blended stock to successive treatments with an acid and an alkali, and distilling off the diluting distillate.

1,560,891. CRACKING STILL FOR MINERAL OILS. William L. Bagwell, Long Beach, Calif. Filed December 27, 1923. Serial No. 682,865. 13 Claims. (Cl. 196—115.)

9. A still for cracking oil having in combination a shell forming a still body of substantially ovate cross section with flat sides and the apex at the bottom, and continuous combustion passages extending through the body lengthwise from end to end and the uppermost passage of the largest diameter, the other passages

(Continued on Page 146)

NUMBER 19 HARTLEY IS SHOWING WATER

(Continued from Page 22)

the old No. 25, a location west of No. 27, was 117 feet lower, and No. 20, another location west, is about the same. A dip of 117 feet from one location to another is not natural when the dip on both sides is less than 5 feet in the same distance.

Not Much Optimism Left

The most optimistic geologists and producers do not hope for many more productive wells in the Garber Field. Of course, they recognize the fact that they have been fooled before—many times. But a few more good locations on the north end will probably tell the story. There is a rumor to the effect that the Roxana geologists have doped out another "high" in the northern part of Section 13-22-4w, but that is conjectural. Anyway, the problem with which the companies in the field are now concerned is what they can do with the Garber wells after they are killed by the constantly encroaching salt water.

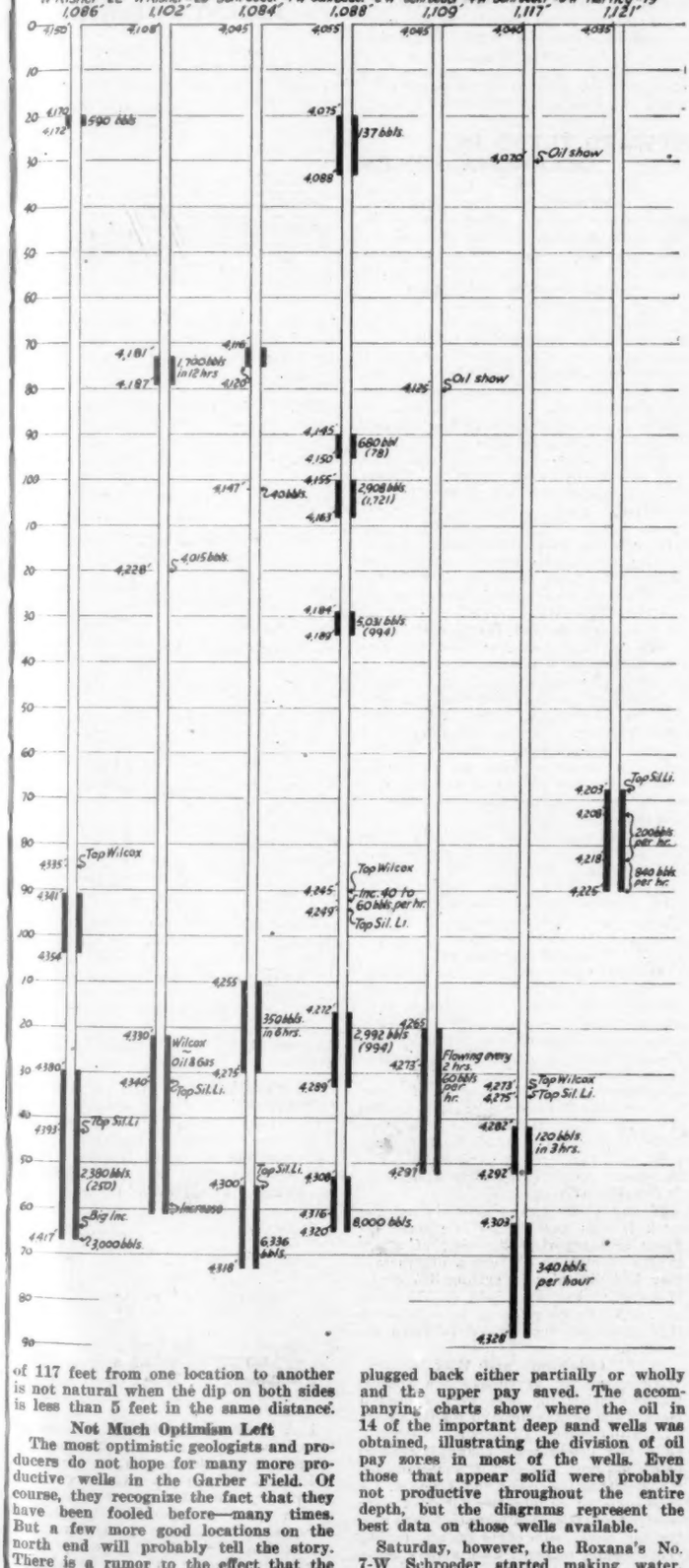
Until last Saturday it had been the fond hope of the Roxana field department that when the water finally killed a well the bottom pay zone could be plugged back either partially or wholly and the upper pay saved. The accompanying charts show where the oil in 14 of the important deep sand wells was obtained, illustrating the division of oil pay zones in most of the wells. Even those that appear solid were probably not productive throughout the entire depth, but the diagrams represent the best data on those wells available.

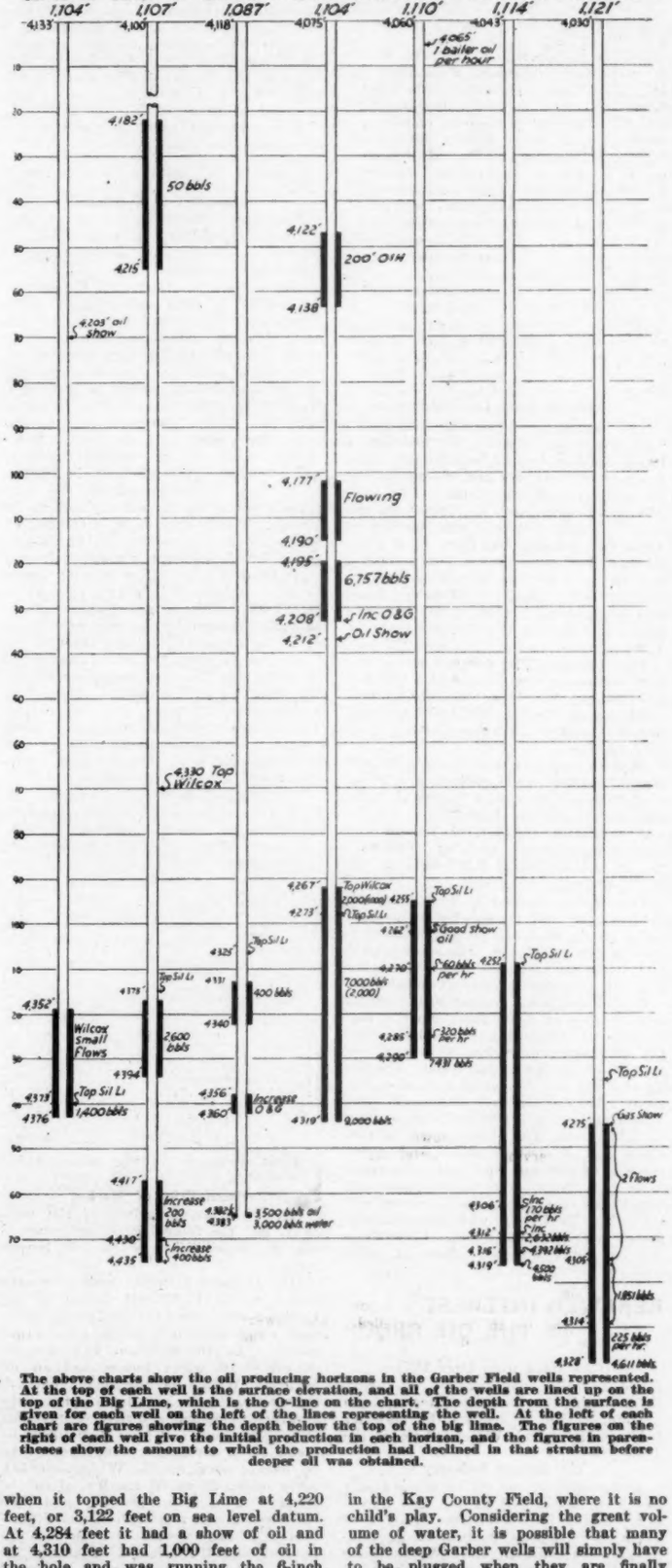
Saturday, however, the Roxana's No. 7-W Schroeder started making water, although it had never been drilled into the lower pay, having been completed for a "small" well in the upper zone. Monday's production from that well was 3,200 bbls. of oil and 1,120 bbls. of water. And now the department doesn't know what it is going to do. The same company's No. 8-W, 47 feet lower structurally, hasn't made any water and is still producing 3,300 bbls. of oil.

Three locations east of the field, the Sinclair Oil & Gas Co.'s No. 10 Schaffer contributed some interesting information when it topped the Big Lime at 4,220 feet, or 3,122 feet on sea level datum. At 4,284 feet it had a show of oil and at 4,310 feet had 1,000 feet of oil in the hole and was running the 6-inch casing Monday.

There seems to be no definite plan for handling the deep wells after they go dead except to swab them for awhile, and, of course, if that proves practicable and profitable it will be continued for a short while in individual cases. The wells average about 200 feet deeper than the Tonkawa deep wells, and pumping them will involve more serious problems than in the Kay County Field, where it is no child's play. Considering the great volume of water, it is possible that many of the deep Garber wells will simply have to be plugged when they are finally drowned out and cease flowing.

Following is the production of the field





The above charts show the oil producing horizons in the Garber Field wells represented. At the top of each well is the surface elevation, and all of the wells are lined up on the top of the Big Lime, which is the O-line on the chart. The depth from the surface is given for each well on the left of the lines representing the well. At the left of each chart are figures showing the depth below the top of the big lime. The figures on the right of each well give the initial production in each horizon, and the figures in parentheses show the amount to which the production had declined in that stratum before deeper oil was obtained.

by wells on Monday morning, November 30:

GARBER DEEP SAND PRODUCTION
November 30

Lease—	Well No.	Oil	Water
Mid-Continent Pet. Co. and Marland Oil Co.:			
School Land	41	171	70
School Land	42	...	...
School Land	43	150	30
School Land	44	65	40
School Land	45	1,000	100
School Land	47	122	40
School Land	53	485	800
School Land	54	712	404
School Land	55	328	...
School Land	58	500	...
Roxana Pet. Corp.:			
Schroeder	1-W	200	600
Schroeder	2-W	400	400
Schroeder	3-W	2,685	600
Schroeder	4-W	55	420
Schroeder	5-W	6,000	300
Schroeder	6-W	2,642	1,300
Schroeder	7-W	3,200	1,120
Schroeder	8-W	3,300	...
Schroeder	9-W	158	...
Wolfe	1-W	325	225
Wolfe	2-W	1,418	60
Sinclair O. & G.:			
Hartley	19	14,140	⅛ %
N. Walker	20	320	400
N. Walker	23	3,000	100
N. Walker	25	100	...
N. Walker	27	693	...
Denker	25	55	12
Denker	26	150	300
Belveal	25	140	180
Belveal	26	118	197
Belveal	27	125	400
Belveal	29	680	...
Belveal	29	680	...
W. Kisner	20	55	250
W. Kisner	21	1,322	950
W. Kisner	22	480	290
Healdton O. & G.:			
Belveal	29	46	...
Carter Oil Co.:			
Dively	54	302	...

Notes on Near Completions

The Marland Oil Co. and Mid-Continent Petroleum Corp.'s No. 55 School Land was just drilling into the pay. The top was at 4,291 feet and it was drilling at 4,295 feet, where it made 328 bbls. The same companies' No. 58 topped the lime at 4,281 feet and was drilling at 4,331 feet, making 500 bbls. Their No. 59 was shut down at 4,375 feet, with a hole full of water, which was drilled into at 4,372 feet. Their No. 44 School Land was plugged back from 4,318 to 4,312 feet. No. 61 set the 6-inch casing at 4,204 feet and was drilling at 4,205 feet.

The Roxana Petroleum Corp.'s No. 9-W Schroeder was drilling at 4,165 feet and making 158 bbls. No. 10-W was drilling at 2,677 feet, No. 11-W at 2,485 feet, No. 12-W at 2,321 feet and No. 13-W at 2,695 feet.

The Sinclair Oil & Gas Co.'s No. 27 North Walker made 693 bbls. in the first 12 hours from sand topped at 4,270 feet and drilled to 4,291 feet. No. 24 was drilling at 2,525 feet; No. 26 was rigging up standard tools at 3,814 feet. No. 28 was drilling at 1,512 feet; No. 29 at 1,290 feet.

The same company's No. 26 South Walker was still headed for China and going strong at 5,362 feet. Its motto is reliably reported to be "The second 5,000 feet make the big hit," or "What the hell can you expect the first mile?"

On the Sinclair's Kisner lease, No. 23 was drilling at 3,665 feet; No. 24 was rigging up standard tools at 3,814 feet. On the Hartley farm, No. 20 was drilling at 3,965 feet, No. 21 at 3,735 feet, No. 22 at 2,606 feet, No. 24 at 3,021 feet, No. 25 at 2,089 feet and No. 26 at 1,727 feet.

Sinclair's No. 31 Belveal was drilling at 3,738 feet. The Healdton Oil & Gas Co.'s No. 31 topped the Tyner green shale at 4,468 feet and was drilling at 4,484 feet; No. 32 was underreaming the 6-inch casing to 3,841 feet. Carter Oil Co.'s No. 55 Dively was underreaming 6-inch casing to 3,965 feet. Champlin's No. 34 Beggs was shut down at 4,645 feet.

RENEWED INTEREST IN THE OIL GROUP

(Continued from Page 137)

failed to take advantage of this offer, it was said, the minority interest made a counter offer to acquire the majority holdings of the Tide Water Oil Co. at the same price.

Oil Burner Industry

The growth of the oil burner industry has been manifested by the first important offering in Wall Street of stock of a major oil burner manufacturing company. Hornblower and Weeks have offered for subscription 100,000 shares of the capital stock of the Williams Oil-O-Matic Heating Corp. at $15 per share, the entire offering being subscribed for. Until now it has not been brought to general notice that the burner industry in itself is taking its place among the important manufacturing industries.

The balance sheet of the Williams company as of October 31, 1925, after giving effect to the change in capitalization and issuance of no-par value common shares, shows total assets of $2,074,238. Charles U. Williams, president of the Williams Oil-O-Matic Heating Corp., states that the company is the largest manufacturer of electrically operated domestic oil burners in the world. The company in 1925 expected to sell and deliver some 12,000 units. The first Oil-O-Matic heater was installed in 1919.

The sales and earnings for the last three years were as follows:

1925 (1st 10 mos.)	10,502
1924	7,038
1923	1,909

Statement of Williams

President Williams says in part: "The Williams Oil-O-Matic Heating Corp. of Illinois is the largest manufacturer of electrically operated domestic oil burners in the world. Starting with the sale of one burner in 1919, sales have steadily increased, until in 1925 the company expects to sell and deliver some 12,000 units. This growth has been financed entirely out of earnings. The company's first national advertising campaign started in May, 1924, with a dealer organization of only 400. Today this organization numbers 1,600 dealers located in every State in the Union, and the company plans to spend $600,000 for advertising in 1926.

"Without borrowing money the company is doing the largest business in its history. The balance sheet of October 31 showed current assets of $1,356,037, ample for the company's needs. Present capitalization is based on earning power, as total net tangible assets amount to $1,753,406. This earning power and the valuable patents owned are carried at $1 on the company's balance sheet."

The capitalization of the Williams Oil-O-Matic Heating Corp. consists of 450,000 shares of no par value authorized, of which 350,000 shares are outstanding. The present offering represents stock bought from individuals and involves no new financing, being included in the 350,000 shares already outstanding.

The balance sheet as of October 31, 1925, after giving effect to the change in capitalization and the issuance of 350,000 shares of no-par value common stock, is as follows:

Assets

Cash on hand	$ 275,238
U. S. Liberty bonds	50,846
Accounts and notes receivable, less reserve for doubtful accounts	305,416
Vendors debit balance	55,579
Inventories	669,790
Property account, less depreciation	587,399
Sundry notes, advances, etc.	111,872
Patents	1
Prepaid expenses and supplies	18,099
Total	$2,074,238

Liabilities

Accounts payable	$ 102,255
Due officers and employes	21,867
Dealers' deposits	62,818
Accrued expenses	3,555
Federal taxes*	130,335
Capital stock, 350,000 shares of no par value	1,753,408
Total	2,074,238

*Final instalment for 1924 and estimated 10 months of 1925.

Possibilities of Market

Mr. Williams, president of the company, has the following to say concerning the possibilities of the oil burner market:

"On January 1, 1925, there were estimated to be 13,252,000 homes in the United States wired for electricity. Every such wired home is a prospect for an oil burner. In Bloomington, Ill., one out of every 10 wired homes has an oil burner. With the increasing cost of anthracite, there has developed in the anthracite consuming territory, including all of New York and New England, a demand for a satisfactory substitute. An oil burner such as the Williams Oil-O-Matic using 28 to 30 gravity oil can be operated at a cost materially less than the cost of coal and with the additional saving of the expense of a furnace attendant and the removal of ashes. In the more moderate climates, the great advantage of the automatic starting of the Williams Oil-O-Matic, due to its thermostatic control, is being recognized."

From Mr. Williams' figures for Bloomington, it might be estimated that 1,325,200 oil burners are in use in the United States, with a potential market for 11,926,800 burners. If each of these burners use 1,500 gallons of oil a year, which is the average for small installations, the total annual consumption of oil in burners in use, based on 1,325,200, would be 1,987,800,000 gallons, while the potential consumption, based on 13,252,000 burners, would be 19,878,000,000 gallons, or 473,000,000 bbls. The latter figure is not considered extravagant by oil men. It is worth thinking over.

UPWARD TREND IN OKLAHOMA PRICES

(Continued from Page 20)

gasoline has been an important angle in the naphtha market. The 56 gasoline was unchanged during the week, quotations ranging from 9½ to 9¾ cents.

Natural Gasoline and Blends

Natural gasolines continued firm to stronger during the week, especial strength being developed in Grade C, in which the prevailing market advanced a quarter-cent during the week. Prices of other natural grades were steady but all products increased in demand. A grades moved at 11¼ to 11½ cents and B grades at 10¼ to 10½ cents.

Manufacturers of motor natural gasoline blends still were pushed to fill orders, the majority of which were for the 64-66 437 grade. This product ruled the market at 10¾ cents with a few possible offerings below this figure. Lower gravity blends were moved at 9¾ to 10 cents. Increasing prices of U. S. Motor gasoline have been largely responsible for the blend strength.

Kerosene and Distillates

General tank wagon advances in eastern States have resulted indirectly in stronger kerosene situation in Group 3, prices on all grades continuing firm during the past week. The 41-43 water white product, however, was plentiful at 5 cents although sales were made at 5⅛ cents and even as high as 5¼ cents. The 42-44 water white still was available at 5½ cents and the 40 prime white at 4⅞ cents.

Spot movements of distillates were not particularly large but prices continued strong. Most of the distillates are moving under contract and there is little occasion for spot buying. The 38-40 continued to be quoted at 4 to 4¼ cents and the 36-38 at 3¾ to 4 cents.

Fuel Oil and Gas Oil

Although the true fuel oil situation has been a matter of uncertainty for several weeks, the solution apparently was revealed the past week in higher prices and stronger markets for all grades. Tuesday virtually no fuel was available under $1.20, even for products of 18 to 22 degrees gravity, and sales of these for December shipment were made readily at $1.25. The 24-26 grade was more difficult to obtain at $1.25 for spot shipment with the trend toward $1.30. The 28-30 was quoted at $1.35 to $1.40 with little being offered.

If any product was slow during the week it was gas oil. While some refiners still reported disposing of straw grades as high as 3¾ cents, others said they had difficulty in getting 3½ cents. However, prices were held at 3½ cents as low, refiners refusing to sell below that although they wanted to move the product.

Lubricants and Wax

As mentioned previously the general warm weather the past week caused a marked increase in demand for Oklahoma lubricating oils, all grades included. Only few prices were changed, refiners being hesitant because of uncertain demand during December and January. A large number of inquiries for wax were received by Oklahoma manufacturers during the week with offers of 5⅜ to 5½ cents. Sales reported were at 5½ cents.

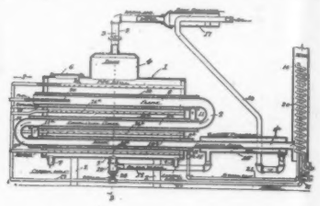
HITCH IN NEGOTIATIONS

The negotiations in Moscow between representatives of Japan and the Soviet for a commercial agreement and regarding the concessions to be granted Japan in Saghalin are not proceeding as expeditiously as had been expected. As a result Japan will probably ask that the period for the conclusion of a commercial agreement be extended for at least 15 days from December 1, the date on which they were to have been concluded.

RECENT PATENTS

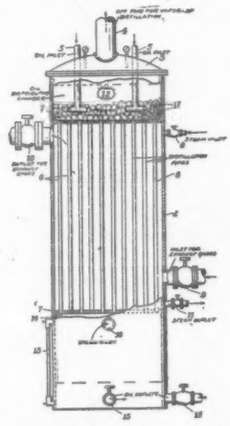
(Continued from Page 144)

progressively diminishing in diameter, said passages being mounted in the still so



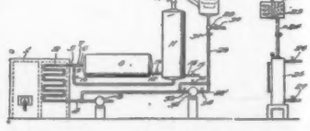
that the oil between the passage and the lateral walls of the still is substantially the same thickness for each successive passage.

1,559,701. METHOD OF DISTILLING OIL. Leon E. Hirt, Los Angeles, Calif. Filed March 2, 1920. Serial No. 362,678. 5 Claims. (Cl. 196—85.)



1. The method of distilling oil, comprising producing a flow of the oil in thin films through a series of tubes in which the distillation takes place and pressing a gaseous medium other than the hydrocarbon being distilled through the tubes to mechanically remove vaporized constituents of the oil, substantially as described.

1,561,779. PROCESS FOR CRACKING PETROLEUM OIL. Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Company, Chicago, Ill., a Corporation of South Dakota. Filed October 19, 1923. Serial No. 669,451. 3 Claims. (Cl. 196—58.)



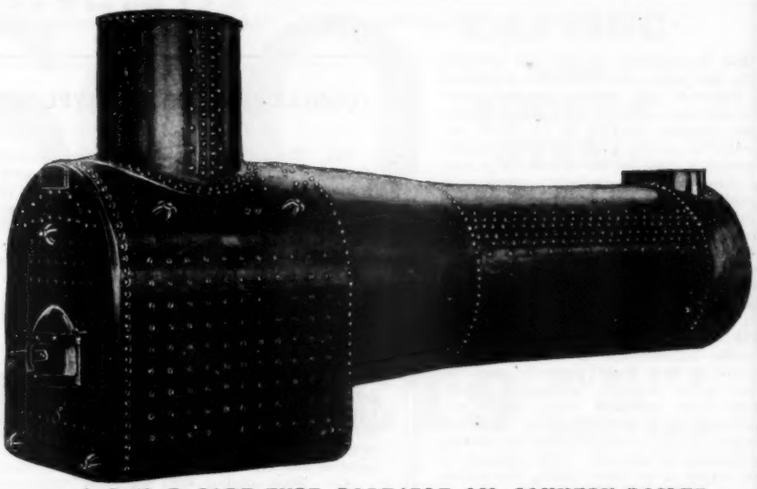
1. A process of cracking oil, consisting in passing the oil through a heating coil wherein it is subjected to cracking conditions of heat and pressure, in transferring a portion of the oil from said coil into a primary expansion chamber, in directing all of the oil constituents from said primary expansion chamber to a secondary chamber, and in introducing the remaining portion of the heated oil from said coil directly into the liquid oil in said secondary expansion chamber to increase the conversion therein.

DONOVAN BOILER WORKS, Inc.
PARKERSBURG, W. VA.

We Would Like To Have You Compare Donovan Boilers With Any and All Others.

Could Anything Be Fairer Than That?

Let Us Demonstrate That "Donovan's" Are Unbeatable



A. S. M. E. CODE TYPE, PORTABLE OIL COUNTRY BOILER

Frick-Reid Supply Company

Sole Distributors West of Mississippi River

Handled by leading supply companies throughout Eastern Fields

DONOVAN BOILER WORKS, Inc., PARKERSBURG, W. VA. New York Office: 30 Church St.

"The Hoist Unit with the 21 Plus Points of Superiority"

Why use any other with fewer advantages?
This one costs no more—note these features:

1—Timken Tapered Bearings in trolley wheels.
2—Steel side plates in trolley.
3—Steel equalizing pin in trolley.
4—Chilled tread wheels in trolley.
5—Steel hanger plates in trolley.
6—Steel hook, drop forged, proof-tested.
7—Steel drop-forged cross guard in hoist.
8—Safety load chain guard.
9—Steel load wheel.
10—Oil tubes.
11—Main driving spindle pinion of SAE Steel.
12—Bronze bushed load sheave.
13—Ball bearing driving spindle.
14—Steel suspension plates.
15—Non-fouling hand chain guide.
16—Gear cover, extra heavy.
17—Steel chain, electric welded.
18—Steel hook, can't open to drop load.
19—Detachable steel coupling.
20—Ball thrust bearing on bottom swivel hook.
21—Spring cover in oil holes.

WRIGHT MANUFACTURING COMPANY LISBON, OHIO.

IMPROVED HIGH SPEED HOIST

37H

Chemistry of Hypochlorite Process

Free Sulphur Does Not React With Sodium Hypochlorite. Action With Light Petroleum Distillates Explained

By S. F. Birch and W. S. G. P. Norris*
Anglo-Persian Oil Co., Ltd., Meadhurst Laboratories, Sunbury-on-Thames, Middlesex, England

The hypochlorite process for refining light petroleum distillates, as advocated by Dunstan and Brooks, depends upon the oxidizing action of an aqueous, somewhat alkaline solution of an alkali hypochlorite on the objectionable sulphur-containing constituents of the oil, whereby these are converted into compounds soluble in the aqueous reagent. An investigation of the chemistry of this oxidation is of obvious importance to the petroleum refiner, more particularly since this process has not only been adopted as a standard method for refining the light distillates from Persian petroleum, but is rapidly becoming more generally used throughout the entire industry. Precise information on the subject is, moreover, the more urgently required since quite recently misleading statements have appeared which reflect unfavorably upon the efficiency of hypochlorite as an oxidizing agent for certain derivatives of sulphur. The purpose of this paper is to state clearly the action of sodium hypochlorite on petroleum solutions of various sulphur compounds, of the types likely to occur in light petroleum distillates which have been completely or partly extracted by means of sodium hydroxide solution.

In judging the types of sulphur derivatives likely to be encountered, it is convenient to consider the light distillate (36 per cent by volume) from the crude petroleum of Maidan-i-Naftun (Persia) In addition to ethyl, isopropyl, and isobutyl mercaptans, there are present neutral organic compounds of sulphur, which form crystalline derivatives with mercuric chloride, and which are almost certainly organic sulphides; these are now under investigation. The presence of the mercaptans was confirmed by the isolation of the relevant disulphides from "spent soda," these having been formed through the oxidizing action of sodium polysulphides. The latter are derived from the action, on the caustic soda solution, of hydrogen sulphide and elementary sulphur, each of which is also present in the light distillate.

Organic Disulphides

The presence of organic disulphides in petroleum has never previously been reported. References to the occurrence of mercaptans are, of course, scattered ad lib. throughout the technical literature, but the actual isolation of a mercaptan from a petroleum or petroleum distillate does not seem to have been hitherto accomplished. We certainly have never been able to find any published account of the identification of a mercaptan derived from petroleum; indeed, the term "mercaptan" seems quite often to have been loosely employed, merely to designate the presumed source of an unpleasant odor, or of a reactivity towards alkaline reagents.

The oxidation to the disulphides proceeds quite readily when the "spent soda" from the soda-washing process is boiled for the purpose of obtaining the organic sulphur compounds, and undoubtedly the disulphides actually isolated had been formed during that operation. Nevertheless the reaction is appreciable at ordinary temperatures; hence small quantities of the disulphides must be formed during the actual agitation with caustic soda solution, and these, being insoluble in the aqueous reagent, pass into the oil. It is probable that small quantities of disulphides are already present in the distillate, previous to washing with soda, having been produced in the petroleum itself at the elevated temperature of distillation, the oxidizing agent being sulphur. It was also shown that, unlike hydrogen sulphide, the mercaptans are only incompletely extracted from solution in petroleum by treatment with aqueous sodium hydroxide. The soda-washed distillate from Persian petroleum contains, therefore, mercaptans (in diminished quantity), organic sulphides (the term includes cyclic sulphides, the so-called "thiophanes", organic disulphides and elementary sulphur; and these, together possibly with thiophen and its substituted derivatives, and perhaps carbon disulphide, include all the forms in which sulphur is likely to be present in other soda-washed distillates.

Elimination of Sulphur

Observations relevant to the elimination of sulphur compounds from petroleum distillates by means of hypochlorite have been placed on record by Waterman and Heimal. Under the conditions they employed diphenyl sulphide, ethyl mercaptan, carbon disulphide, diphenyl sulphone, diethyl sulphone and ethyl thiocyanate were "completely removed" from petroleum solution, whilst phenyl mercaptan, diethyl sulphide, phenyl isothiocyanate, phenyl thiocyanate and diphenyl sulphoxide were "substantially removed." Organic disulphides were not examined nor, apparently, were any of the oxidation products investigated.

The discrepancies between the views expressed by Wood, Lowy and Faragher and firstly, the results of Waterman and Heimal, secondly, the experience of those who are daily operating the hypochlorite process, have made it essential to investigate the whole subject de novo.

Completely Oxidized

It may be stated at once that all the mercaptans, organic sulphides and organic disulphides which we have examined are completely oxidized by aqueous sodium hypochlorite, that the reactions are quantitative if sufficient of the oxidizing agent is used, and that these oxidations proceed quite readily, provided a suitably active solution of the reagent is employed. Thiophen and elementary sulphur are not attacked.

The term "suitably active" requires explanation. It is well known that a solution of an alkali hypochlorite is more stable, i. e. undergoes spontaneous decomposition less readily, and is less reactive towards substances capable of being oxidized, the greater the concentration of free alkali. Conversely, the solution may be rendered less stable and more reactive towards other substances, by reducing the quantity of free alkali which it contains, or by dilution. The hypothesis that free hypochlorous acid, produced by hydrolysis, is the active agent in hypochlorite solutions: $OCl + H_2O \longrightarrow HOCl + OH$ affords, for the above facts, a logical and, as Kaufman has shown, quantitative ex-

CONCLUSIONS FROM HYPOCHLORITE REFINING

(1) The action of aqueous sodium hypochlorite on petroleum solutions of typical mercaptans, dialkyl sulphides, and dialkyl disulphides and of hydrogen sulphide, elementary sulphur, and thiophen, has been examined.

(2) Evidence has been obtained in favor of Kaufmann's view, that hypochlorous acid is the active agent in a solution of sodium hypochlorite.

(3) Organic sulphides are converted into sulphones. The latter are neutral, noncorrosive and odorless. The lower sulphones, being more soluble in water than in spirit, are removed by the aqueous reagent; those of higher molecular weight, which remain dissolved in the petroleum, would, on redistillation, be found in the residue or higher fractions (e.g. kerosene) from which they may be removed by washing with sulphuric acid, or by absorption or, for example, bauxite.

(4) Mercaptans are converted into disulphides. The alkylsulphonic acids, together with sulphuric acid, are simultaneously formed in smaller amounts; these are also produced by the continued action of the reagent on the disulphides. It follows that the action of aqueous sodium hypochlorite can lead, if the reagent is sufficiently reactive, and is used in sufficient quantity and for a long enough period, to a complete removal of mercaptans and disulphides from a petroleum distillate.

(5) Free sulphur does not react with sodium hypochlorite and cannot be removed from petroleum by the hypochlorite process.

(6) Sodium hypochlorite converts hydrogen sulphide partly into sulphuric acid but chiefly into free sulphur, which is then not further attacked. This apparent difficulty can be surmounted in operating the hypochlorite process by resorting to a preliminary soda-wash, whereby hydrogen sulphide may be completely extracted from the oil, and the subsequent formation of free sulphur avoided.

(7) Thiophen does not react with sodium hypochlorite.

*An abbreviated form of this paper has appeared in the September number of the Journal of the Chemical Society, London.

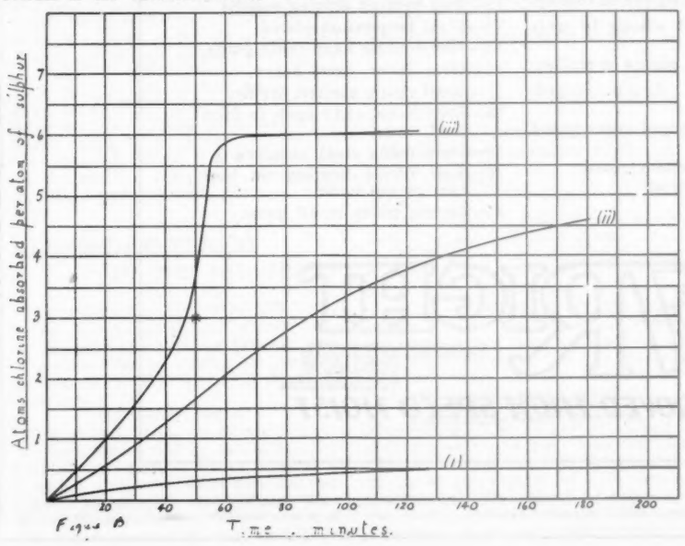


Figure 8

TABLE I
Available Chlorine in Reagent—8.42 Per Cent

Free Alkali	Diethyl Sulphide		Di-n-propyl Sulphide		Diisobutyl Sulphide		Diisoamyl Sulphide	
%	n	x	n	x	n	x	n	x
0.32	4.08	Nil	4.17	0.04	3.81	0.58	3.94	0.86
0.37	4.26	Nil	4.28	0.04	3.64	0.56	3.63	0.82
0.54	4.18	Nil	4.27	....	3.37	0.78	2.68	0.81
0.91	4.24	Nil	4.16	0.05	2.33	0.62	1.87	0.83
1.48	4.14	Nil	3.91	0.09	1.68	0.56	1.28	0.78
2.87	4.15	Nil	3.05	0.25	0.87	0.74	0.83	0.82
4.14	4.14	Nil	2.00	0.42	0.62	0.86	0.74	0.84
6.64	4.02	Nil	1.08	0.72	0.45	0.85	0.84	0.84

n=atoms of available chlorine absorbed, per atom of sulphur present.
x=% sulphur in residual petroleum.

TABLE III
Ethyl mercaptan solution: S=0.715%.
Available chlorine, 0.42%. Time of shaking, 15 minutes.

Free alkali, per cent.....	0.22	0.37	0.54	0.91	1.48	2.86	4.14	6.64
Atoms Cl absorbed per atom S...	7.34	7.13	6.58	6.19	5.89	5.43	5.17	5.14
Per cent S. in residul petroleum	Nil	Nil	0.03	0.11	0.12	0.14	0.15	0.19

TABLE IV
Diethyl Disulphide Solution: S=0.631%. 255 c.c. Taken.

Time of shaking, minutes	Sodium hypochlorite solution "A." (Cl=5.43%; "NaOH"=0.38%) 25 c.c.			Solution "A" plus solid carb. (Cl = 5.33%; "NaOH" = 0.38%; *Na_2CO_3=0.37%.			Solution "A" 25 c.c. plus 25 c.c. water			Solution "A" 25 c.c. plus 100 c.c. water		
	v	n	x	v	n	x	b	v	n	x	v	n	x
15	0.32	0.78	0.57	0.71	0.67	0.57	2.59	0.13	2.95	0.35	Nil	5.45	0.02
30	0.26	1.69	0.48	0.64	1.49	0.51	3.24	Nil	5.78	Nil	Nil	5.53	Nil
45	0.09	2.76	0.25	0.59	2.20	0.42	7.09	Nil	5.80	Nil	....	....	....
60	Nil	5.88	Nil	....	....	....	....	Nil	5.88	Nil	....	....	....
75	Nil	5.90	Nil	0.20	5.71	Nil	6.88	Nil	5.90	Nil	....	....	....
90	Nil	5.91	Nil	0.20	5.73	Nil	6.62	....	....	....	....	....	....
105	Nil	5.98	Nil	....	....	....	....	....	....	....	....	....	....
120	Nil	6.15	Nil	....	....	....	....	....	....	....	....	....	....

"v"—Per cent "free alkali" in residual aqueous reagent.
"n"—Atoms available chlorine absorbed per atom of sulphur present.
"x"—Per cent sulphur in residual petroleum.
"b"—Per cent of total sulphur which appears as sulphuric acid.
*Calculated as sodium hydroxide.

BIT AND JAR-STEEL

BOX-PIN-STEEL-SLIP-STEEL

UNDER-REAMER-BODY and CUTTER STEEL, DRILL COLLAR STEEL

ASCO

CAPPING and SOCKET STEEL TOOL-JOINT STEEL

SPECIAL-HIGH-GRADE

SPECIAL ALLOY STEEL

FORGING-BILLETS

QUALITY and SERVICE

Manufactured By

ANDREWS STEEL CO.

NEWPORT, KY.

The Cross Cracking Process

Whether your "yardstick" for measuring a cracking process is theoretical considerations or practical considerations, you will always find that the Cross Process will measure up, with a greater profit thrown in for good measure.

THE M. W. KELLOGG CO.,
90 West St.,
New York City

Branch Offices:
700 Baltimore Av., Kansas City, Mo.
2929 19th St., San Francisco, Cal.
304 Lane Mortgage Building, Los Angeles, Cal.

joints! joints! joints!

THEY'RE the cause of big furnace bills in refineries. They cause firebrick to tumble into the furnace.

They allow corners of brick to protrude into the furnace under the strain of expansion and contraction. Corners spall. Bricks crack. The bond is loosened and drops out. Soon relining is needed.

That's why, next time, you should install the monolithic furnace lining—Plibrico!

Plibrico has no joints. It's plastic. Pound it in with a mallet. Trim it with a trowel. Then leave it alone. Your long-lived Plibrico Linings won't bother you for years and years. Jointless Plibrico stands the gaff.

Anyone can install it. There's no stocking of special tile for irregular shapes, like doghouses. Heat loss through the still setting is decreased.

Want to know more about Plibrico? Then don't overlook the coupon.

PLIBRICO JOINTLESS FIREBRICK COMPANY
1146 CLAY STREET, CHICAGO
Factories: Chicago and Trenton, N. J.

In 85 cities, you'll find Plibrico engineers and warehouse stocks. One is close to your refinery. Plibrico is packed in cylindrical steel wooden-ended containers, as shown opposite, by a patented method.

free Ask for your copy of the 32-page book—"Refractories and Furnace Design"

Firm.....
Address.....
My Name.....

To Plibrico Jointless Firebrick Co.
1146 Clay Street, Chicago.
O&GJ-12-3R-RTG

Kinney

Depend upon it it's a Kinney Pump

Steady Continuous Service

—hour after hour, day after day,—requiring little or no attention, giving a steady, consistent flow of the heaviest crudes, asphalt, tar and all viscous and bituminous products. When you find this condition, it is more than an even chance that it is a KINNEY PUMP.

Thousands of KINNEY PUMPS are telling the same story of consistent efficiency in refineries that dot the map of the United States and foreign fields. Low cost operation, low cost maintenance, trouble-proof service under all conditions,—these are the reasons why so many plants are depending upon KINNEY PUMPS—and why it would be profitable for you to investigate this pump in both its types—steam jacketed and plain.

Let Us Send You Data

KINNEY MANUFACTURING COMPANY
Boston, Mass.

Philadelphia, Chicago, New York, Kansas City, Houston, San Francisco, Los Angeles

planation. He has found that the velocity of spontaneous decomposition of aqueous sodium hypochlorite is inversely proportional to the concentration of hydroxyl ions, and that the fraction of the total hypochlorite ions destroyed in unit time is independent of the concentration of sodium hypochlorite. Assuming, as seems only reasonable, that a greater tendency towards spontaneous decomposition will be accompanied by a greater reactivity as an oxidizing agent, it follows that the reactivity of the reagent will be greatly dependent, in the sense mentioned above, upon the concentration of free alkali, and upon the dilution. Hence it is necessary, in stating certain sulphur compounds to be quite readily oxidized by aqueous sodium hypochlorite, to qualify the latter by the term "suitably active."

General Method

The organic solvent used was a special fraction of petroleum, boiling between 100 degrees Centigrade and 175 degrees Centigrade, which has been freed from aromatic compounds by shaking with a large excess of concentrated sulphuric acid, and afterwards thoroughly washed with a solution of sodium hypochlorite. The sulphur content was less than 0.005 per cent. Solutions of the various compounds of sulphur in the special petroleum were employed (containing from 0.6 to 0.9 per cent sulphur). Solutions of sodium hypochlorite were prepared by leading chlorine into a solution of pure sodium hydroxide in distilled water until the free alkali has been reduced to a predetermined amount. Solutions of greater alkali content could then be obtained by adding solid sodium hydroxide, without appreciably altering the content of available chlorine. The latter was determined by adding acetic acid and potassium iodide and titrating the liberated iodine. For the estimation of free alkali, the hypochlorite was first decomposed by boiling with hydrogen peroxide. The cooled liquid was then titrated with hydrochloric acid using methyl orange as indicator; this gave the sodium hydroxide together with the sodium carbonate (the quantity of the latter was quite small), the result being calculated as sodium hydroxide.

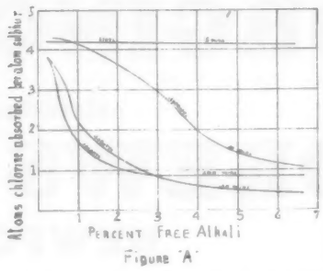


FIGURE 'A'

It was usual to shake 25 c.c. of the analyzed reagent with 25 c.c. of the standard solution of sulphur compound in a bottle closed by means of a cork covered with tinfoil. A mechanical shaker was used, the speed of shaking being maintained constant throughout this research. After a period of shaking previously decided upon, the petroleum layer and the aqueous liquid were separated and analysed.

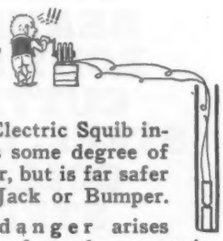
Organic Sulphides

Since no complication arises from the formation of acidic oxidation products, it is convenient to consider first the interaction of aqueous sodium hypochlorite and a petroleum solution of an organic sulphide, R. S. R. The latter is converted quantitatively into the corresponding sulphone, $R.SO_2R$. Not even traces of any intermediate compound, (i.e. a sulphoxide, R.SO.R), could be isolated, nor does hypochlorite appear to exert any further action on sulphones; in fact the available chlorine used up generally corresponds very closely with four atoms per atom of sulphur oxidized. (Hence it is extremely improbable that the removal of sulphones from petroleum solution, reported by Waterman and Heimal, was due to anything but solvent action; for this purpose water alone would no doubt have been equally effective). It

When You Shoot Your Oil Well

Don't Take a Chance With An Electric Wire Squib!

It Always Bridges!



The Electric Squib involves some degree of danger, but is far safer than Jack or Bumper.

The danger arises largely from the uncertainty of the Electric Squib. It is easy to break the wire after it has been strung in the hole, and short-circuiting is a common occurrence. In either case the Electric Squib must be removed, a complete run of new wire attached, the hole cleaned out and the Squib again lowered to placement.

Again, the wire invariably bridges! This is a source of annoyance and expense. It involves the possibility of bursting the casing through efforts to remove the bridge. It delays getting the well on production.

Don't Use an Electric Squib!

Use Zero Hour Electric Bomb

—No Wires to Bridge;
—No Question About Shot Going Off;
—No Speculation as to Time of Discharge;
—No Danger of Damage to Casing or Well;
—No Danger of Premature or Accidental Discharge;
—No Expensive Delay in Getting Well on Production.

The Above Facts Are Proven by the Record of Zero Hour Electric Bomb in Over 900 Cases.

Zero Hour Torpedo Co.
P. O. Box 2100,
Casper, Wyo.
710 Cosden Bldg.,
Tulsa, Okla.
309 S. Main St.,
Eureka, Kans.

Zero Hour Torpedo Co.,
710 Cosden Bldg.,
Tulsa, Okla.
Please send me details about Zero Hour Electric Bomb.
Name .....
.....
Company .....
.....
Address .....
.....

HIGH PRESSURE BOILERS

OIL STILLS, ACCUMULATORS, TANKS, CONDENSERS, HEAVY PLATE WORK

THE WALSH & WEIDNER BOILER COMPANY'S Sectional Header Water Tube Boiler is especially designed to meet the present day requirements of safe, high pressure Water Tube Boiler.

These Boilers are built in sizes up to 2,500 H.P. and for working pressures up to 500 lbs. per square inch.

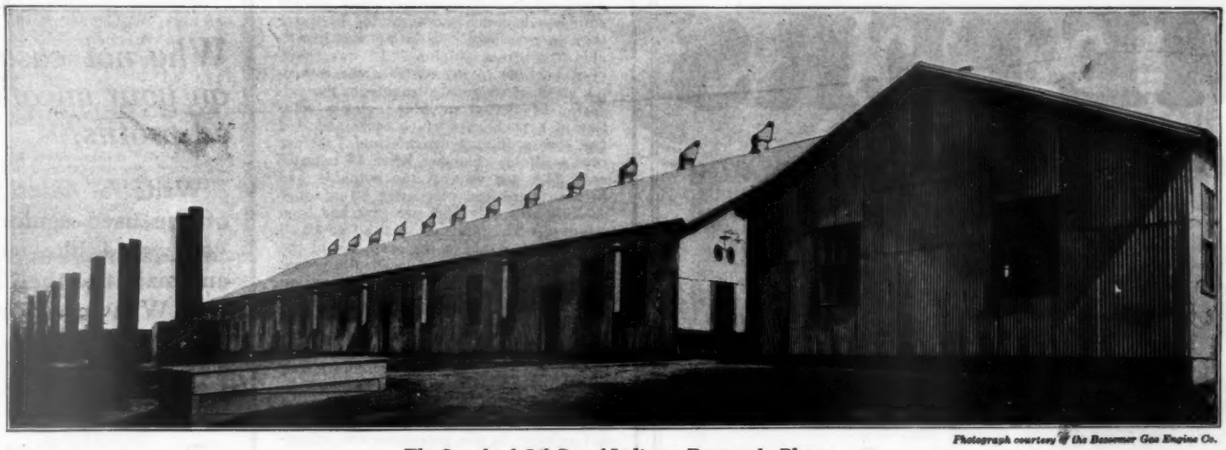
Our plant is one of the largest in the United States and is equipped throughout with the heaviest and most modern machinery. We are therefore able to furnish Heavy Plate Steel Work of all kinds for Oil Refineries.

THE WALSH & WEIDNER BOILER COMPANY

Main Office and Plant: Chattanooga, Tenn.

Branch Offices:

New York, N. Y. | New Orleans, La. | Memphis, Tenn. | San Francisco, Cal. | Kansas City, Mo.
Houston, Tex. | Greenville, S. C. | Chicago, Ill. | Havana, Cuba | Mexico City, Mex.



Photograph courtesy of the Bessemer Gas Engine Co.

The Standard Oil Co. of Indiana, Drumright Plant

Proper Ventilation Pays Dividends

Swartwout Ventilators are built of copper, or of a special rust-resisting metal, over a frame of heavy galvanized iron. They turn on noiseless non-corrosive and hard bronze ball bearings.

Stocks carried in principal cities including the Pacific Coast.

Swartwout
Rotary Ball Bearing
Ventilators

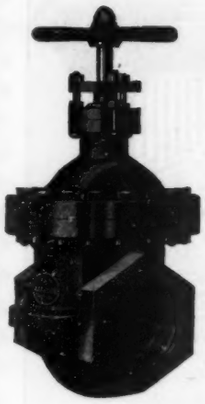
HERE'S a plant where heat, fumes, and gases are carried out as fast as formed. Swartwout Ventilators do this work thoroughly and silently without attention and without cost, bettering operating conditions and increasing production.

Send for a copy of "The Gospel of Fresh Air," which contains much helpful data. Better still submit your problem in detail. Our ventilation engineers who have solved many and varied ventilation problems for the largest companies in the oil industry, will gladly make complete recommendations without obligation to you.

THE SWARTWOUT COMPANY, Cleveland, Ohio

General Offices: 18525 Euclid Ave. Factories: Cleveland, Ohio—Orrville, Ohio
Branches: New York, 103 Park Ave.
Chicago, 365 Washington Blvd. St. Louis, 1837 Railway Exchange Bldg.
Pittsburgh, 610 Maloney Bldg.
Saginaw, Mich., The J. D. Swartwout Co.

Either Side of the Gate



It makes no difference which side of the gate the pressure is on LUDLOW DOUBLE GATE VALVES work equally as well.

This is just one of the many, many reasons why LUDLOW VALVES give such excellent satisfaction.

Write for particulars and prices.

The Ludlow Valve Mfg. Co.

(Established 1866)

Factory: Troy, N. Y.

Branch Offices:

Kansas City, Mo.; Chicago, Ill.; Pittsburgh, Pa.; Boston, Mass.

METERS

For Measuring Production and Distribution of

Oil

Gasoline

Gas

and Other Fluids

PITTSBURGH METER COMPANY

General Offices and Works:

7800 Susquehanna St., PITTSBURGH, Pa.

SALES OFFICES:

New York—50 Church St.
Chicago—5 South Wabash Ave.
Kansas City—Mutual Bldg.
Columbia, S. C.—1433 Main St.
Seattle, Washington.
Los Angeles—Union Bank Bldg.

is of interest that the reagent does not become appreciably less alkaline during this oxidation.

Kahlbaum's diethyl, di-n-propyl, diisobutyl and diisoamyl sulphides were employed, without further purification. The formation of diethyl sulphone from diethyl sulphide by the action of sodium hypochlorite was demonstrated by evaporating the remaining aqueous liquid at the conclusion of the reaction, the residue being then extracted by means of chloroform in a Soxhlet apparatus. On evaporation of the chloroform, diethyl sulphone was obtained in 75 per cent yield, m.p. 70 degrees Centigrade, and was identified by comparison with a genuine specimen prepared by oxidizing diethyl sulphide by means of potassium permanganate. The higher sulphones were found to be more soluble in petroleum than in water. They were, however, prepared in yields of over 70 per cent by shaking the corresponding sulphides with an aqueous sodium hypochlorite solution without the addition of an organic solvent. The resulting sulphones separated as oils. They were taken up in chloroform, dried over calcium chloride, and the solvent removed; the residue was then distilled at the ordinary pressure. Diisobutyl sulphone boils at 263 degrees Centigrade with slight decomposition; diisoamyl sulphone boils at 296 degrees Centigrade with slight decomposition.

Effect of Alkalinity

The effect of alkalinity upon the rate of oxidation of the sulphides was tested by means of eight solutions of sodium hypochlorite which contained 8.42 per cent available chlorine, but in which the alkalinity (calculated as sodium hydroxide) varied from 0.22 per cent to 6.64 per cent. Solutions of diethyl, di-n-propyl, diisobutyl, and diisoamyl sulphides were employed, having sulphur contents of, respectively, 0.736, 0.864, 0.912 and 0.875 per cent. Preliminary experiments led us to adopt for the times of shaking, 15, 30, 120 and 240 minutes, respectively. The results obtained in this series of experiments are summarized in Table I; the graphical presentation is exhibited in Figure A.

Diethyl sulphide was always completely oxidised after 15 minutes; since diethyl sulphone is much more soluble in water than in petroleum, the latter was invariably free from sulphur. It was, however, possible to demonstrate the retarding effect of sodium hydroxide on the oxidation of diethyl sulphide, using a solution of hypochlorite which contained 20.4 per cent sodium hydroxide and 7.89 per cent available chlorine; after 15 minutes only 21.1 per cent of the sulphide had been oxidized and even after 60 minutes' shaking still only 53.4 per cent had been removed. The influence of the free alkali is more noticeable in the oxidation of the higher sulphides. Thus, with di-n-propyl sulphide there is a gradual diminution in the extent of oxidation, which is accompanied by a corresponding increase in the quantity of sulphur remaining in the petroleum.

A much more pronounced inhibition of the reaction by free alkali is observed in the oxidation of diisobutyl and diisoamyl sulphides. Here the figures for the residual sulphur in the petroleum are irregular; this has been traced to the existence of a partition of the resulting sulphones between the aqueous reagent and the organic solvent. It was usual, before proceeding to the analysis of the petroleum layer, to wash it once or twice with a small quantity of sodium hydroxide solution to remove any free hypochlorous acid; in consequence varying quantities of the higher sulphones were dissolved from the petroleum. This has been confirmed by actually washing petroleum solutions of diisobutyl and diisoamyl sulphones several times with water; it was verified that the sulphur content of the petroleum was reduced in this way. Using a dilute, faintly alkaline solution of sodium hypochlorite, any of the sulphides deal with was rapidly oxidized.

Does Not Oxidize

It is evident that even using so strongly an alkaline solution as one containing 6.64 per cent free alkali, the reaction between aqueous sodium hypochlorite and

Uncollected Profits

Manufacturers and supply companies furnish the Oil Industry with strong, durable equipment built to withstand severe usage.

As your organization expands and you need new and larger equipment, do not allow your good used machinery to remain idle, taking valuable space.

Thousands of men read the Classified Wants Section every week. Some of them would be glad to pay for the idle equipment on which you are now paying storage charges.

Why not cash in on your uncollected profits?

Write a description of the used equipment you would like to sell and mail it to the Classified Wants Section. It will help you to get cash for your idle equipment.

Turn to the Classified Section and see how others are using it to good advantage.

Mail your description today. *The rates are very low.*

The Oil and Gas Journal

TULSA, OKLA.

FULTON

High Pressure Governors for Manufactured Gas

Performance in numerous installations prove that the Duplex Sensitive Governor excels all others in simplicity and accuracy.

These governors are especially adapted for the requirements of manufactured gas companies, where the high pressure transmission system is in use.

They will reduce a high and varying inlet pressure to a low and unvarying delivery pressure within a small fraction of an inch.

Constructed of materials resistent to the chemical action of manufactured gases; all frictional surfaces eliminated; and the diaphragm surface increased to secure the utmost delicacy of regulation.

Action is positive and independent—no auxiliary regulators complicate operation. Designed for highest efficiency—no machinery to get out of order—nothing but ordinary valve wear experienced. Easily and quickly installed and needs little attention afterward.

SEND FOR CATALOG and details of this governor or any other pressure controlling device you may need.

THE CHAPLIN-FULTON MFG. CO.

Organized 1884—oldest builders of gas regulators in the country. Built in all sizes, from 1 inch to 24 inches; for all service, 1 oz. up to 1,000 lbs. pressure to square inch.

28-34 Penn Ave., Pittsburgh, Pa.

56

Assured Beyond Doubt

are the thousands of Producers, Refiners and Marketers who regularly read America's Greatest Petroleum Publication—The Oil and Gas Journal.

Truth
Dignity
Character

a dialkyl sulphide may be said to proceed quite readily, by comparison with the prolonged reactions so common in synthetic organic chemistry; and even with a reagent containing 20 per cent free alkali the reaction with diethyl sulphide is still obvious and could scarcely fail to be detected. In fact (vide supra), this reaction offers a very convenient method for the preparation of sulphones.

It follows that the statement that hypochlorite does not oxidize organic sulphides, made by Wood, Lowy & Faragher, is incorrect. It may perhaps be explained by supposing that those authors, who do not state how much free alkali their hypochlorite solution contained, were dealing with a particularly alkaline, and therefore inert, reagent. Even so, however, the reaction will proceed to completion if it is allowed to continue; it is more likely that their failure to detect this oxidation was due to the strange omission to analyze the residual aqueous layer. Had this been done, an absorption of available chlorine would presumably have been apparent; since the higher sulphones remain for the most part in the petroleum layer it is obviously useless to rely solely on estimations of sulphur.

Organic Disulphides

Diethyl and diisophopyl disulphides were examined; these were quite readily freed fromtraces of the mercaptan or sulphide by fractional distillation. The behaviour of the lower homologue towards aqueous sodium hypochlorite is evidently typical of the disulphides since parallel results have been obtained working with the diisopropyl derivative.

The primary oxidation products from diethyl disulphide, unlike the product from a sulphide, are acidic, i. e., ethyl sulphonic acid, together with a smaller quantity of sulphuric acid; these, by combination with the free alkali originally present in the reagent, appear finally as their sodium salts. The alkalinity of the aqueous phase is in this way gradually reduced. That the sulphuric acid is formed directly from the disulphide, and not by a secondary reaction from the sulphonic acid, has been proved by showing that the latter (as its sodium salt) is not attacked by hypochlorite.

$$R.SO_3H \text{ — } R.SO_3Na$$

$$R_2S_2$$

$$H_2SO_4 \text{ — } Na_2SO_4$$

The gradual removal of the alkali hydroxide makes it necessary, in describing the effect of alkalinity on the reaction, to distinguish two somewhat different cases. (1) The free alkali present is more than equivalent to the total possible acid products; the reagent will always remain alkaline. (2) The free alkali is less than equivalent to the total possible acid products; if the reaction is continued long enough the reagent will become avidic. The reaction in the first case may be described as the normal one; plotting the atoms of available chlorine absorbed per atom of sulphur against time curves are obtained (Fig. B) of which (i), for a strongly alkaline, and (ii) for a weakly alkaline reagent are typical. The influence of the added alkaline hydroxide is very marked. If, however, the alkalinity of the reagent is so chosen that it falls into the second class, the additional complication causes the curve to assume quite a different form (iii). The initial part of the reaction takes the normal course until the acidic primary products have completely neutralized the free alkali present; at that point (*) there occurs a very rapid absorption of available chlorine until the sulphur compound is entirely removed from the petroleum solution, when the reaction tails off, and only a slow spontaneous decomposition of the residual dilute acid hypochlorite continues to take place.

TABLE II

Diethyl Disulphide. S—0.631%. 25cc.

Time of shaking; minutes.	Sodium hypochlorite solution "A" (Cl=5.43% "NaOH"=0.38%) 25 c.c.			Sodium hypochlorite solution "B." (Cl=5.33% "NaOH" = 0.73% 25 c.c.		
	1	*	n	x	*	n	x
30	0.26	1.59	0.48	0.66	0.93	0.59
15	0.33	0.78	0.57	....	....	....
45	0.09	2.76	0.35	....	....	....
60	Nil	5.88	Nil	0.57	2.10	0.47
75	Nil	5.90	Nil	....	....	....

We Do Know About Dies

One of my kids came home the other night and said to me:
"Dad, what does Australia raise more of than any other country in the world?"
"Wool?"
"Nope."
"Wheat?"
"Nope."
"What then?"
"Australians!"

Now, If It Had Been Dies—

If she had asked me who made the best and most pipe dies—
Well, I might not have told her, but I would have thrown out my chest.
We always made the best, and now I guess we make the most.
Other people make pipe tools, among other things.
We make pipe tools, and nothing else.
That's the difference—that and the quality.

HARRY G. NYE.

NYE—*The Die Man*
Pipe Tool Maker to the American Plumber and Steamfitter

The Nye Tool & Machine Works
4120 Fullerton Avenue
Chicago, Illinois

Nye Toledo type threaders, made in both the plain and ratchet type. Satisfaction absolutely guaranteed. Sent on free trial.

No. 1 Nye Toledo Type Threader complete ..... $9.60 net
West of Rocky Mountains..... $10.20
No. 1-A Nye Toledo Type Threader, complete ..... $12.00 net
West of Rocky Mountains..... $12.75

Nye Saunders Type Pipe Cutters

made in all standard sizes—equipped with Nye thin blade cutter wheels without extra charge.

No. 1	$ 1.80 net
No. 2	2.70 "
No. 3	6.60 "
No. 4	10.80 "

Nye Barnes Type Pipe Cutters

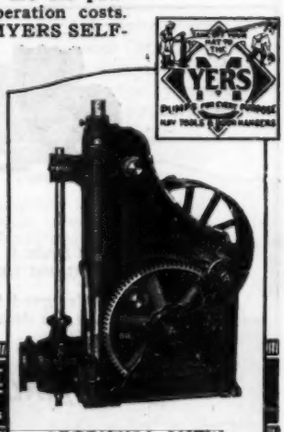
made in all standard sizes—equipped with Nye thin blade cutter wheels without extra charge.

No. 1	$ 2.25 net
No. 2	3.00 "
No. 3	5.00 "
No. 4	10.00 "
No. 5	15.00 "
No. 6	20.00 "

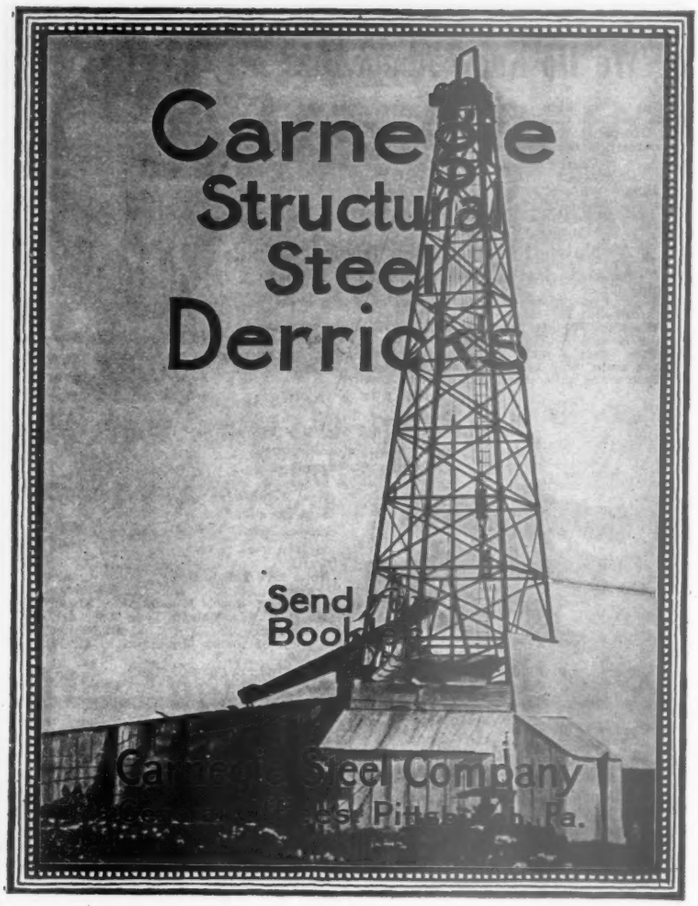
MYERS

SELF-OILING
A REGISTERED TRADE NAME
BULLDOZER POWER PUMPS

Maximum service—minimum expense are the powers that govern operation costs. Do you know that MYERS SELF-OILING BULLDOZER POWER PUMPS with their positive self-lubrication, enclosed working parts, improved method of power application, extra large valves and other exclusive features have created a new standard of water service, the like of which cannot be equaled by old types of power pumps. Capacities up to ten thousand gallons per hour, with styles for both shallow and deep service, MYERS SELF-OILING POWER PUMPS are cutting water costs in two for many operators. We'll be glad to send catalog and information.



THE F. E. MYERS & BRO. CO.
ASHLAND, OHIO.
ASHLAND PUMP AND HAY TOOL WORKS



90	Nil	5.91	Nil	0.50	3.67	0.37
105	Nil	5.98	Nil	....	....	....
120	Nil	6.15	Nil	0.47	3.76	0.29
150	....	....	....	0.45	4.17	0.26
180	....	....	....	0.41	4.62	0.20

*=Per cent "free alkali" in residual aqueous reagent. "a"=atoms available ent. "x"=per cent sulphur in residual pe- ent. "x"—per cent sulphur in residual petroleum.

Sodium Ethyl Sulphonate

A considerable evolution of heat occurs at and immediately after the point in the reaction marked with an asterisk; the oxidation at this stage is so rapid that it has never been found possible to isolate a sample of the reagent corresponding with the points intermediate between this and the completion of the reaction.

It must be noted that even 20 per cent of sodium hydroxide does not completely inhibit the oxidation of a disulphide by means of aqueous sodium hypochlorite.

Sodium ethyl sulphonate was identified as a product of the oxidation of diethyl disulphide as follows: The disulphide was dissolved in petroleum and shaken with a faintly alkaline solution of sodium hypochlorite in slight excess, until the mixture had become warm and had commenced to cool again. The aqueous liquid was warmed and treated with sulphur dioxide to decompose any residual hypochlorite and any sodium chlorate present. After adding an excess of hypochloric acid the excess of sulphur dioxide was expelled by boiling, the solution neutralized, and taken to dryness. Sodium ethylsulphonate, mixed with sodium chloride, was extracted by means of absolute alcohol from the residue, after drying the latter at 110 degrees Centigrade. The pure salt was obtained after repeated crystallization from absolute alcohol until it no longer contained chlorine (Found: Na=17.4; Calcid. Na=17.5 per cent).

The presence of sulphuric acid in the aqueous layer from the oxidation was demonstrated as follows: A portion was withdrawn, and any residual hypochlorite destroyed by adding ammonia and boiling. On adding hydrochloric acid and barium chloride, and boiling, a white precipitate was obtained.

Mercaptans

Ethyl mercaptan was used for these experiments; results obtained with isopropyl and isobutyl mercaptans indicated that the reaction followed the same course.

The mercaptans, before fractionally redistilled, were washed with a small quantity of sodium hyroxide solution to remove any hydrogen sulphide.

Alkalinity

The apparent course of the reaction between sodium hypochlorite and ethyl mercaptan depends greatly upon the alkalinity of the reagent. The first action leads simultaneously to the formation of ethylsulphonic acid, sulphuric acid, and diethyl disulphide; the latter, if the reagent is sufficiently reactive, is destroyed as it is formed, the acids (as their sodium salts) being the only products. But with a more stable solution of hypochlorite a much slower decomposition of the disulphide occurs and this substance then appears as the chief product, accompanied by smaller quantities of the acids, which have been formed, for the most part, by direct oxidation of the mercaptan. The first part of the reaction, in which the mercaptan itself takes part, does not appear to be affected by the alkalinity of the reagent, whilst the factors which influence the destruction of the resulting disulphide are those which govern the normal interaction of this type of compound with sodium hypochlorite (vide supra).

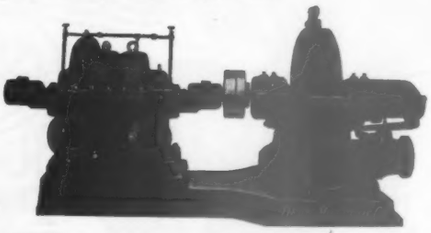
$$\begin{array}{ll} H_2SO_4 & Na_2SO_4 \\ R.S.H & R_2S_2 \\ R.SO_3H & R.So._3Na \end{array}$$

The proof that ethylsulphonic and sulphuric acids are formed concurrently with the disulphide is as follows: Using a solution of ethyl mercaptan containing 0.715 per cent of sulphur and a solution of sodium hypochlorite containing 5.3 per cent available chlorine and 27.2 per cent sodium hydroxide, after 15 minutes 4.8 atoms of chlorine per atom of sulphur had been taken up, simple conversion to the disulphide requiring only

DEAN HILL PUMP CO.
ANDERSON IND.

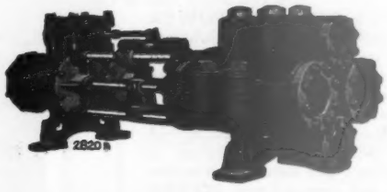
SPECIAL FEATURES FOR THE OIL INDUSTRY

QUICK SHIPMENT GUARANTEED



OIL TERRITORY DEALERS

TULSA, OKLA. Woobank Pump & Machinery Co.
Kirk Eichelberger Rialto Bldg., SAN FRANCISCO, CAL.
Southern Engine & Pump Co. HOUSTON, TEXAS



DURABLE DUPLEX STEAM PUMP
FOR 600 LBS. WORKING PRESSURE

This pump is designed for high pressure, heavy duty pumping and will satisfy the demands of the most severe service.

New York Sales Office, 149 Broadway

DEAN BROS. CO. INDIANAPOLIS.

Send for Cat. 114

"CUT OIL"

is a problem in
CHEMISTRY

An "emulsion" represents a condition of a liquid which can be fully, scientifically and economically corrected by use of the chemical process. Use TRET-O-LITE process when you have cut oil and tank bottoms that require treating.

WM. S. BARNICKEL & CO.
St. Louis, Mo.

Tret-O-lite
Reg. U. S. Pat. Off.

Write for free cat.

ARMSTRONG BROS.
CHAIN PIPE VISE
DROP FORGED STEEL
The Ideal Portable Vise
RAPID, STRONG, COMPACT
One turn of handle releases or grips pipe.

ARMSTRONG BROS. TOOL CO.
320 No. Francisco Ave., Chicago, U.S.A.

GURLEY

The Oil Man's Standard in
ENGINEERING INSTRUMENTS
— Since 1845 —
W. & L. E. GURLEY Troy, N.Y.

For AMBULANCE Service
PHONE 3-7111
MARTIN FLEMING UNDERTAKING CO.
Prompt and Efficient Service
110 W. Ninth Tulsa, Okla.

Northern Oil Information Bureau
Shelby, Montana
Complete weekly drilling and operating report of Kevin-Sunburst field mailed to any address, $10 for four reports. Maps and logs for sale. Best of references.
We maintain geological, land and field departments, all in expert hands.

PATENTS OBTAINED FOR INVENTORS
JACK A. SCHLEY
U.S. PATENT ATTORNEY
305 INTERURBAN BLDG. DALLAS

PATENTS
Write for free book
MUNN & CO.
Associated since 1846 with the Scientific American
651 Woolworth Building, New York City
514 Scientific American Bldg., Washington, D. C.
1303 Tower Building, Chicago, Ill.
656 Hobart Building, San Francisco, Cal.
511 Van Nuys Building, Los Angeles, Cal.

TEXAS OIL MAPS
County and District
Catalog on Application
HEYDRICK MAPPING COMPANY
Wichita Falls, Texas

Capital Abstract & Realty Co.
W. S. Bell L. B. Norton
J. F. Patterson
Okmulgee, Okla.

DAWSON TOWEL SUPPLY
Aprons, Towels, Jackets for Rent
Towel Service for Office $1.50 Mo.
Phone 9985 Tulsa, Okla.

Dickey-Ashby-Fountain Co.
General Insurance
Derricks, Tanks and Contents Insured
1114 Atlas Life Bldg., Tulsa, Okla.

GEO. W. HENRY, Printer
"Better Printing"
Phone 2-0238
510 S. Elgin Tulsa, Okla.

LAFE SPEER ABSTRACT CO.
General Abstractors
J. A. Boyd, Pres. and Mgr.
11 S. Park St. Sapulpa, Okla.

Place your order for Ice with the
TULSA ICE CO.
3-0012, 4 N. Detroit, Tulsa, Okla.

JOHN M. SPELLMAN
PATENTS U.S. PATENT LAWYER 311 MAGNOLIA BLDG. DALLAS, TEXAS U.S. SUPREME COURT PRACTICE INCOME TAX SPECIALIST

one, and this figure did not appreciably increase after a further 45 minutes' agitation. This shows quite clearly that diethyl disulphide, once it is formed, is not appreciably attacked by hypochlorite having the alkalinity mentioned; this was confirmed by treating a solution of diethyl disulphide with the same reagent, when even after two hours, only 0.4 atom of chlorine per atom of sulphur had been absorbed.

The influence of alkali hydroxide upon the extent of oxidation of ethyl mercaptan during a fixed time of shaking is exhibited in the appended table III.

Ethylsulphonic acid was identified in the manner described under the heading "Organic Disulphides;" the sodium salt was analyzed (Found: Na=17.4; calc.: Na.=17.5 per cent), Sulphuric acid was also identified as before. Diethyl disulphide was isolated from the petroleum at the conclusion of the reaction; the yield, however, never exceeded approximately 50 per cent.

Conclusion Erroneous

In the light of the above results, the conclusion of Wood, Lowy & Faragher that "the mercaptans are converted to the corresponding disulphides and that the sulphur content is not reduced," can only be described as erroneous. The isolation of the disulphide from the oxidation of isobutyl mercaptan by means of sodium hypochlorite (an observation quite correct in itself) does not, of course, prove that hypochlorite is without further action, because the atomic ratio of available chlorine employed to sulphur present was only slightly more than 1.33: 1. and, as shown above, acid products are always formed concurrently with the disulphide; hence it is unlikely that at the conclusion of this experiment there was any available chlorine remaining in the aqueous reagent.

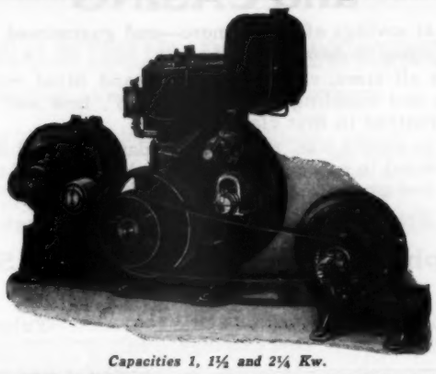
The direct formation of acidic products during the initial conversion of mercaptans into disulphide can be detected, firstly, by the ratio of chlorine absorbed to sulphur present; secondly, by a decrease in the concentration of sulphur in the organic solvent. If the reagent is extremely alkaline this initial removal of sulphur from the petroleum may, of course, be followed by a prolonged period during which the residual sulphur is slowly but steadily extracted from the petroleum. Nevertheless we have found that no matter how unreactive the solution of hypochlorite, sulphur is always removed from the petroleum during the earlier stages of the reaction. This, moreover, has been observed not only with ethyl mercaptan (our results with which are reported in detail), but also with isopropyl and isobutyl mercaptans; the initial oxidation of either of these proceeds quite as readily as that of the lower homologue.

Consequently, although Wood, Lowy & Faragher, when treating isoamyl mercaptan with sodium hypochlorite, did not, apparently, attempt to measure the available chlorine absorbed, they should nevertheless, have observed a decrease in the sulphur content of the organic solvent. Their failure to do so is inexplicable, unless we make the improbable assumption that the behaviour of isomyl mercaptan is quite unlike that of its lower homologues. Even if the observations of Wood, Lowy & Faragher with isoamyl mercaptan were accurate, the generalization, quoted at the head of this paragraph, would still be incorrect and misleading.

Influence of Sodium Carbonate

The solutions of sodium hypochlorite invariably contain sodium carbonate in addition to sodium hydroxide, sodium chloride, and sodium chlorate. During the earlier experiments, estimations were made of the actual sodium hydroxide, as well as sodium carbonate, in the aqueous reagent. The experimental procedure involved in this complete anaylsis made it, however, extremely inconveninet to carry out a sufficient number of experiments during many of the more rapid oxidations. In seeking a more simple method for determining the alkalinity of the hypochlorite, it was therefore necessary to ascertain whether sodium carbonate has any appreciable effect upon the reactivity of the reagent. For this purpose the reaction with diethyl disulphide was chosen, as being the most sensitive to-

THE NEW MOON
Gasoline-Electric Lighting Plant



Capacities 1, 1½ and 2¼ Kw.

ANOTHER STEP FORWARD IN DERRICK LIGHTING EQUIPMENT. Especially adaptable for service where power for drilling is furnished by oil or gas engines. Note the extra pulley which can be attached for driving your blower or other auxiliary apparatus.

MOON GENERATORS—*"First in the Field"*
Ask your Supply Store about them.

THE MOON MANUFACTURING COMPANY
108-128 NO. JEFFERSON ST., CHICAGO

McGregor Working Barrel

McGREGOR
"The Working Barrel That Works"

Over fifty-five thousand now in use from Pennsylvania to Argentine and from Oklahoma to India wherever oil is produced.
No Barrel can compete with the McGregor in price. It comes with the barrels, valves, valve stem all complete at a price slightly more than what the old style Barrel would cost. Pumps as fast as regular barrels that are attached to the tubing.
The only pulling done when you have a McGregor in use is the rods as the complete Barrel is fastened to the rods and comes out when they are pulled. TUBING PULLING is done away with as far as the Working Barrel is concerned. Use "Mac" Ball and Seat.

See your dealer or write us for circular
in ordering parts refer to these letters
McGREGOR WORKING BARREL CO., Inc.
Sole Manufacturers
BRADFORD, PENNA.

WILLIAMS
"VULCAN" BACK-UP WRENCH
A new and stronger size of this ideal tongs for back-up service is ready. *Write for literature.*
J.H. WILLIAMS & CO.
"The Wrench People"
New York BUFFALO Chicago

Piping systems complete in every detail—design, construction, erection—for oil refineries and for plants employing special chemical processes. Write!
POWER PIPING CO., Pittsburgh, Pa.

Power Piping
FOR EVERY INDUSTRIAL NEED

GUARANTEED USED PIPE and CASING

Priced at savings of 1-3 or more—and guaranteed to give service equal to new!

Pipe in all sizes, rigidly inspected and fitted with new threads and couplings. Sizes 1" to 16", new and used—all guaranteed in first class order.

Casing in sizes 5 3-16" to 15½", standard and D B X. Warranted equal to new in grade and workmanship of threads, collars and protectors.

Ready for shipment now! Get our prices.

Joseph GREENSPON'S Sons
IRON & STEEL CO.
St. Louis, Mo. Tulsa, Okla.
Breckenridge, Tex.

LUFKIN "Atlas" GAUGING TAPE

By far the world's best tape for this purpose and the only one specially designed for it.

Extra heavy ⅛ inch Steel Line with Nubian Finish and *Instantaneous* Readings, making reading easy, rapid and accurate.

Lock handle Frame, also extra sturdy and winds tape speedily. Practical 18 oz. bob.

Send for Catalogue
"Tapes and Rules For The Oil Fields."
TAPES FOR GAUGING, STRAPPING AND GENERAL WORK
THE LUFKIN RULE CO. SAGINAW, MICH.
New York Windsor, Ont.

FOGGAN SAFETY ROD ELEVATORS,
To all oil men appeal;
Because they are made,
Of DROP FORGED STEEL.

They'll stand the strain,
And that is no bluff;
For we all well know,
They are made of the stuff.

FOGGAN SAFETIES are the kind,
That's sure to serve you best;
Whether you live in the East,
Or live in the West.

A real rod elevator,
For safety and speed;
Only one rod wrench,
Is all that you need.

Our records can show you,
That we sell to them all;
To big oil corporations,
And to dealers, great and small.

Your dealer will supply you,
We know he is up to date;
Just remember the name, FOGGAN,
And don't make a grave mistake.

Manufactured by
Geo. N. Foggan, Pleasantville, Pa.

BLACKMER ROTARY PUMPS
Regulate the Flow of Crude

Blackmer Rotary Pumps are efficient refinery pumps, delivering crude to the stills as it is needed, in an easily regulated flow.

Two methods of regulation are used satisfactorily:

Equipping the Blackmer with a by-pass and control valve. The valve can be set and maintained at any opening.

Powering the Blackmer with a steam engine which can be throttled to any speed.

In every Blackmer is incorporated the exclusive Blackmer Principle of automatic take-up-for-wear. This insures economical and care-free pumping, a necessity in every refinery.

Blackmers are designed with capacities varying from 3 to 500 G. P. M. They may be supplied with steam jackets or with replaceable linings, as the nature of the liquid to be pumped requires.

Consult our engineers about your pumping problems.

Blackmer Single Electric-Driven Unit Equipped with By-Pass

BLACKMER PUMP Co.
Grand Rapids, (Formerly at Petoskey) Michigan
Branches in Eighteen Principal Cities

wards the influence of added alkali. The results are summarized in Table IV, in which a comparison is drawn between the course of the reaction between a standard solution of diethyl disulphide and (i) a weakly alkaline solution of sodium hypochlorite (ii) the same solution after the addition of solid sodium carbonate.

These figures do not show any detectable increase in stability brought about by the addition of sodium carbonate. This is scarcely surprising, since no appreciable alteration is produced in the concentration of hydroxyl ions by adding sodium carbonate to a solution already containing a comparatively large quantitiy of sodium hydroxide.

It was, in consequence, possible to adopt quite a simple method for determining the alkalinites of a series of reagents. The object of these anaylses was two fold; the decrease in the alkali present before and after a reaction gave a measure of the acid products, whilst the alkalinities of a series of reagents formed an indication of their reactivities. The solutions all contained approximately the same concentration of sodium carbonate, present as impurity in the weakly alkaline solution of sodium hypochlorite to which varying quantities of solid sodium hydroxide had been added. Since differences in alkalinity were to be compared, as distinct from the actual hydroxyl ion concentrations, the alkalinity was estimated, after destroying the hypochlorite by means of hydrogen peroxide, by titration against hydrochloric acid using methyl orange as indicator. Hence curves in which alkalinity is plotted as one of the coordinates are slightly displaced in a direction parallel to the axis of alkalinity; for the present purpose this is immaterial.

Dietyl Disulphide

The increase in reactivity brought about by diluting a solution of sodium hypochlorite was demonstrated by means of the reaction with diethyl disulphide. The reagent used was the same solution which had been employed for the experiments with sodium carbonate; in one series the solution was diluted to one-half, in the second to one-fifth, its original concentration. The results, which clearly indicate an increase in concentration of the sodium hypochlorite, are included in Table IV.

Elementary Sulphur

The observation of Wood, Lowy & Faragher that free sulphur is precipitated when hydrogen sulphide reacts with sodium hypochlorite, has been confirmed, but evidence of the simultaneous production of sulphuric acid has been obtained. This is not formed by further oxidation of the elementary sulphur, since the latter has been shown to be quite inert towards sodium hypochlorite. Now, although the presence of free sulphur in a petroleum distillate, or in the residue from the redistillation of a distillate, is not made obvious by an unpleasant odor, it is in realty one of the most harmful forms in which this element can be present. Hence the treatment of a spirit, containing sulphur is formed, would be deleterious rather than beneficial (so far as that particular sulphur-containing constituent of the oil is concerned). It must, however, be remembered that the extraction of hydrogen sulphide from petroleum, by means of soda solution, is irreversible and, using a quantity of alkali chemically equivalent to the hydrogen sulphide, complete. No difficulty, therefore, need arise from the formation of elementary sulphur if the spirit is given quite a small soda-wash previous to the hypochlorite treatment. This is, in fact, the standard process in dealing with the light distillate from Persian petroleum—a procedure which, presumably, would be followed by those dealing with the distillates from other sources. Consequently it was scarcely necessary that the reaction between hydrogen sulphide and sodium hypochlorite should be studied in detail.

In confirmation of the observation of Wood, Lowy & Faragher, it was not found possible to detect any chemical reaction between sodium hypochlorite and thiophen.

JOHN L. RICH
PETROLEUM GEOLOGIST
OTTAWA, KANSAS

L. G. Huntley Stirling Huntley
HUNTLEY & HUNTLEY
PETROLEUM GEOLOGISTS AND ENGINEERS
Frick Building PITTSBURGH, PA.

FREDERICK G. CLAPP
Consulting Geologist and Petroleum Engineer
30 Church St., New York City

F. B. Porter, B. S., Ch. E., President
R. H. Fash, B. S., Vice President
THE FORT WORTH LABORATORIES
Field gas testing. Analyses of oil field brines, gas, minerals and oil
828½ Monroe St., Fort Worth, Texas

Robert H. Wood Virgil O. Wood
WOOD & WOOD
GEOLOGISTS AND PETROLEUM ENGINEERS
Phone 2-1725
302 Commercial Bldg.
TULSA, OKLA.

CARL B. ANDERSON
GEOLOGIST AND PETROLEUM ENGINEER
804 Kennedy Bldg.
TULSA, OKLA.

CHARLES T. KIRK
JAMES E. HOOVER
CONSULTING GEOLOGISTS
Tulsa, Oklahoma
Phone 2-2821 329 Atco Bldg.

Appraisals Investigations
SAMUEL J. CAUDILL
PETROLEUM ENGINEERS
TAX COUNSELLORS
Tulsa 1014 Atlas Bldg.
Los Angeles 433 Security Bldg.

Wilbur E. Brown G. Thomsen, Jr.
BROWN & THOMSEN
GEOLOGISTS
419 West Grand Ave.
OKLAHOMA CITY, OKLA.

H. H. MESSIMER
Tank Gauging Engineer
MACHINE MADE TANK TABLES
ABSOLUTE ACCURACY
P. O. Box 257 104 Mid-Co Bldg.
Phone 2-4909—Tulsa, Okla.

ROLAND B. DAY
Petroleum Consultant.
25 Broadway
New York City

JOHN B. KERR
PETROLEUM GEOLOGIST
Phone Garfield 4734
601 BALBOA BLDG.
SAN FRANCISCO, CALIF.

W. G. MATTESON
CONSULTING GEOLOGIST
Specialist examinations and appraisals Mid-Continent and Gulf Coast Oil Properties
314 Texas State Bank Bldg., Fort Worth, Texas
Box 471, G. P. O., New York City

F. JULIUS FOHS
OIL GEOLOGIST
Mason Bldg., Houston, Texas
818 Kennedy Bldg., Tulsa, Okla.
and 60 Broadway, New York
Cables: Fohsoil
Codes: Bentley & McNeil
No professional work undertaken

William H. Foster W. A. Reiter
FOSTER & REITER
CONSULTING GEOLOGISTS
19th Floor, Magnolia Bldg., Dallas
Atlas Life Bldg., Tulsa

WALTER STALDER
OIL GEOLOGIST
Crocker Bldg.
SAN FRANCISCO, CALIF.

FRANK C. GREENE
CONSULTING GEOLOGIST
Exchange Natl. Bank Bldg.,
Tulsa, Okla.
Office Phone 2-4589
Residence Phone 8516

V. H. McNUTT
Consulting Geologist and Appraiser
409 Security National Bank Bldg.
Tulsa, Okla.

C. W. WASHBURNE
GEOLOGIST
2 Rector Street New York

E. J. LONGYEAR CO.
MINING ENGINEERS AND GEOLOGISTS
Diamond Core Drill Manufacturers
Diamond Drilling Contractors
MINNEAPOLIS, MINN.

Clive M. Alexander
CONSULTING ENGINEER
Petroleum Refineries and Natural Gasoline Plants
910 Atlas Life Building
TULSA, OKLA.

EDWIN B. HOPKINS
CONSULTING GEOLOGIST
25 Broadway
NEW YORK

GENE R. SMITH
Consulting Petroleum Geologist
Chicago 1930 Conway Bldg.
Dallas 2104 Magnolia Bldg.

V. A. THOMPSON
Geologist and Engineer
West Texas Only
PECOS, TEXAS

EFFICIENCY REWARDED BY THE TEXAS CO.

HOUSTON, Tex., Nov. 28.—The production department of The Texas Co. has announced the results of the contest held in each of the five divisions during the first half of this year to determine which foremen and pumpers attained the best state of efficiency.

The points to be determined were: Maintenance of leases in regard to production, cleanliness, economies effected. Inspections were made by the general manager, assistant general manager, general superintendents and division superintendents. Each winner was presented wih a gold watch suitably engraved. Other lease employes were given favorable mention. Awards have been announced as follows:

Oklahoma-Kansas Division

Winners.—M. H. Passmore, foreman, Bristow district; E. A. Aubuchon, head roustabout, Glenn Pool district; Thomas W. Capps, pumper, Flat Rock district. Favorable mention.—Jerry Connors, foreman, Flat Rock district; Guy Folsum, roustabout foreman, Osage district; Marshall H. Copeland, pumper, Cushing district; Lester E. Anderson, pumper, Bristow district; John R. Pruitt, pumper, Eird Creek district; Ferman T. Hughes, pumper, Healdton district; Grover C. Perigo, pumper, Bird Creek district; George M. Folger, pumper, Glenn Pool district.

North Texas Division

Winners.—T. H. Murrah, pumper, Archer district; George S. Meabon, production foreman, Archer district; L. R. Todd, roustabout foreman, Burkburnett district. Favorable mention.—H. C. Gamblin, pumper, Electra district; Claude Graham, pumper, Burkburnett district; T. J. Whitley, pumper, Burkburnett district; W. E. Keenan, roustabout foreman, Panhandle district; Joseph Bessent, roustabout foreman, Electra district; C. C. Dickey, roustabout foreman, Archer district.

North Central Texas Division

Winners.—Malcolm H. Price, pumper, Breckenridge district; Minor H. Harper, pumper, Breckenridge district; William I. Mitchell, farm boss. Favorable mention.—Frank Keener, pumper, J. M. Gholson lease; John H. Miller, farm boss.

South Texas Division (Gulf Coast)

Winners. — Hugh Livingston, gang pusher, Sour Lake district; Parker M. Weston, pumper, Sour Lake district; William W. Boyd, pumper, Sour Lake district. Favorable mention. — Thomas Mueller, pumper, West Columbia district; J. E. Wilson, gang pusher, West Columbia district.

Louisiana-Arkansas Division

Winners.—S. A. Todd, production foreman, Mansfield-Crichton district; B. G. Arnold, roustabout foreman, Smackover district; Robert Norton, pumper, Smackover district; George White, pumper, Smackover district. Favorable mention. —C. J. Flannigan, production foreman, Pine Island district; W. D. Daugherty, roustabout foreman, Pine Island district; A. C. Tirpitz, pumper, Pine Island district; G. D. Hayes, pumper, Pine Island district; G. W. Cope, pumper, Pine Island district.

Plans are being prepared for another contest and inspection, which will be announced later. The executives of the production department express themselves as well pleased, the benefits being reflected in an increase in earnings and a decrease in expenses. They say the cost of producing is largely dependent upon the employes actually in charge of activities on the ground and that the awards made and to be made in the future are a satisfactory return on the investment.

ARGENTINE OUTPUT GAINS

Assistant United States Trade Commissioner Avery at Buenos Aires, cables the Department of Commerce that petroleum produced by Government oil wells in the Comodoro Rivadavia district during 1924 is placed by the Argentine Government at 2,936,062 bbls., compared with 2,304,101 bbls. in 1923.

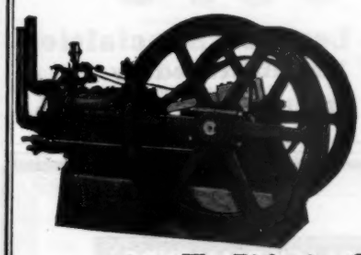
APPRAISALS — SURVEYS — DESIGNS — CONSTRUCTION

NATIONAL PETROLEUM ENGINEERING CORPORATION

OFFICERS AND DIRECTORS	OFFICES
W.N.THAYER, President	TULSA, OKLA.
D.D.FINLEY, Vice-President	ATLAS LIFE BLDG.
HARRY A.CAMPBELL, Secty.	WASHINGTON, D.C.
HERBERT D MASON	ALBEE BLDG.
PETER Q. NYCE	LOS ANGELES, CAL.
F. LEE STEWART	SECURITY BLDG.

ENGINEERS N P G E GEOLOGISTS

Unfailing Reliability



has resulted in PICKERING GOVERNORS being adopted as standard by Engine Builders and Operators, alike.

Folder 39 on request.

The Pickering Governor Co.,
Portland, Conn.

ROSS-MEEHAN FOUNDRIES

Manufacturers

Electric Steel Castings, Certified Malleable Iron Castings, and Gray Iron Castings

For

Oil Producers and Refineries

"Meehanite Metal" Castings

River Clamps a Specialty

CHATTANOOGA, TENNESSEE, U. S. A.

GOULDS

FOR ALL PIPE LINE AND REFINERY SERVICES

BULLETINS ON REQUEST
THE GOULDS MANUFACTURING COMPANY
Seneca Falls, N. Y.
Branches or Agencies in All Principal Cities

PUMPS

STEEL
for Immediate Shipment from Stock
Bars, Plates, Rivets, Tool Steel, Shapes, Sheets, Bolts, Welding Rods, Structurals, Tubes, Wire, Concrete Reinforcing, Rails, Pipe, Turnbuckles, Small Tools, Machine Tools, etc.
Write for Ryerson Journal and Stock List
JOSEPH T. RYERSON & SON INC.
CHICAGO ST. LOUIS CINCINNATI
TULSA OFFICE—418 ATLAS LIFE BLDG.
Houston—D. S. Mair, 220 Main Street
DETROIT BUFFALO NEW YORK

"SEEP" "STAR"
Oil Well
CUPS
and Leather Specialties
Manufactured by
C. A. AUER, Corry, Pa.

CARBON (BLACK DIAMONDS)
FOR DIAMOND CORE DRILLS
IMPORTERS
INDUSTRIAL DIAMONDS
MANUFACTURERS
DIAMOND POINTED
TOOLS FOR ALL
MECHANICAL PURPOSES

WRITE OR WIRE FOR CATALOGUE AND FULL PARTICULARS
THE DIAMOND DRILL CARBON CO.
61 PARK ROW, NEW YORK, N.Y. CABLE ADDRESS, CREDOTAN, N.Y.

Those Who Operate Weathering Tanks
will find a safe, improved and exceptionally well designed relief valve in our Type No. 505. Bulletin describing this specialty gladly mailed on request.
THE FISHER GOVERNOR CO.
369 Fisher Bldg. Marshalltown, Iowa

Both Will Do It
There are two things that will keep the machinery in operation:
One is good lubrication.
The other is the Classified Wants Section.
Whenever you want to buy or sell good used equipment advertise in the Classified Section.
It Will Help You!
THE OIL AND GAS JOURNAL
Tulsa, Okla.

STEEL PLATE CONSTRUCTION
Steel oil storage tanks, Condensers, Stills, Refinery equipment of every kind.
Fabricated and Erected
RITER-CONLEY COMPANY
General Offices—Pittsburgh, Penna.

ACCURATE LOGGING OF ROTARY WELLS URGED

At a meeting of the Tulsa Geological Society held in the auditorium of the Municipal Building, Tulsa, the principal speaker of the evening was Stuart K. Clark of the Marland Oil Co.'s geological department, who gave two very interesting talks.

Mr. Clark, who was introduced by Vice President A. F. Truex, spoke on "Accurate Logging of Rotary Wells" and "The Thomas Pool." The Marland geological department has given considerable attention to the problem of logging rotary wells and has succeeded to such an extent that it now makes logs which offer splendid correlation, Mr. Clark said, and he explained in great detail the method of catching samples of the cuttings.

"The greatest difficulty in starting this system is the lack of interest that the drillers manifest, and now that we have cable tool logs that are fairly accurate, it is not too much to expect that the future may see rotary logs that are also accurate," the speaker said, and he pleaded with the geologists to initiate a campaign of education among the rotary drillers.

Mr. Clark's talk on the Thomas Pool was highly interesting not only to the geologists, but also the non-technical members of his audience. He predicted that the producing area of the pool would not be more than two locations greater than the present production, unless a fault be found on the north side of the production.

CRUDE OIL PRODUCTION IS CLASSED AS INCOME

WASHINGTON, D. C., Nov. 28.—Oil extracted from the ground is not a part of the capital value of the property, but is income and not a capital return, Judge Graham of the Court of Claims of the United States, declared in a recent decision which is of vital importance to the oil industry. As such, the jurist pointed out in his opinion, the value of the extracted oil cannot be taxed by the Government as a part of the capital return from the sale of the property. This question of "depletion" has long been a bone of contention between the oil interests and the Commissioner of Internal Revenue. It was thoroughly aired by the court in deciding the case brought by Charles A. Ludey against the United States involving taxes paid by the plaintiff, a resident of Parkersburg, W. Va., on oil land operations and sales in Oklahoma.

BIG FUEL OIL STORAGE TANK

A huge steel fuel oil storage tank as high as a three-story building and covering an area equal to a half city block is rapidly nearing completion at Longview, Wash. The capacity of the monster Standard Oil Co. tank, the largest in the northwest and equal to any in the entire country, will be 88,000 bbls.

F. W. FREEBORN
Engineering Corporation
Engineers, Appraisers, Constructors, Managers for Oil and Industrial Properties. Valuations for Income Tax. Reorganization, Refinancing and Mergers.
General Offices: Mayo Bldg. Tulsa, Oklahoma

READ THE
Classified Wants
Pages 128-129
DO IT NOW
YOU MAY MISS A BARGAIN

BROKAW, DIXON, GARNER & McKEE
GEOLOGISTS
PETROLEUM ENGINEERS
Examinations, Appraisals
Estimates of Oil Reserves
120 Broadway New York City
Caracas, Venezuela

Amil A. Anderson P. W. Anderson
ANDERSON & ANDERSON
Mining Engineers and Petroleum Geologists
304 Bitting Building
Wichita, Kansas
Telephone Market 2887

ROBERT W. HUNT CO.
Inspecting and Testing Engineers
Inspection of Oil Line Pipe, Oil Well Casing, Tanks, Drums and Barrels
Inspection During Manufacture
Resident Inspectors at Pipe and Steel Mills
2200 Insurance Exch., Chicago

H. H. HOOD
PETROLEUM ENGINEER AND GEOLOGIST
Explorations, Surveys, Appraisals, Audits, Consultations, Management
1601 International Life Bldg.
St. Louis, Mo.

GEO. C. MATSON
GEOLOGIST
2-2049—Phones—2-1833
402 Cosden Bldg. Tulsa, Okla.

Frank A. Herald John M. Herald
HERALD BROTHERS
GEOLOGISTS
PETROLEUM ENGINEERS
303 Cosden Bldg. Phone 3-8711
TULSA, OKLAHOMA

DEWITT T. RING
PETROLEUM GEOLOGIST
Armstrong Bldg.
El Dorado, Ark.

M. M. GARRETT
CONSULTING GEOLOGIST
233 Harvey-Snider Bldg.
Wichita Falls, Texas

ROBERT W. CLARK
CONSULTING GEOLOGIST AND APPRAISER
Depletion and Reserves for Income Tax
217 Commerce Bldg.
OKMULGEE, OKLA.

HARRY F. WRIGHT
GEOLOGIST
Geological Examinations
Valuations for Tax and Financing
206 So. Cheyenne TULSA

W. L. GOMORY
CHEMICAL ENGINEER
Consulting Petroleum Technologist
INVENTOR GOMORY CRACKING PROCESS
Licenses Solicited
Refinery Design
Peoples Gas Building Chicago

WHAT AND WHERE TO BUY

A Classified Index of Advertisers in This Publication

For Alphabetical Index See Page 17

A

Absorption Plant Equipment—
American Radiator Co.
Braun, C. F. & Co.
Cooper, C. & G. Co.
Griscom-Russell Co.
Newton Process Mfg. Co.
Southwestern Engineering Co., Inc.
Tulsa Boiler & Machinery Co.

Absorption Towers—
Hope Engineering & Supply Co.
Newton Process Mfg. Co.

Acetylene Apparatus—
Oxweld Acetylene Co.

Acetylene—Disolved—
Prest-O-Lite Co., Inc.

Acetylene in Cylinders—
Prest-O-Lite Co., Inc.

Agitators—
Chicago Bridge & Iron Works.
Kaw Boiler Works Co.
Petroleum Iron Works Co.

Air Compressors (See Compressors—Air)—

Alloy Steel (See Steel—Alloy)—

Alloy Steel Castings (See Castings—Alloy Steel)—

All-Steel Drilling Derricks (See Derricks— Steel)—

All-Steel Drilling Rigs (See Rigs)

Aluminum Bronze Powder for Paint—
Aluminum Co. of America.

Ammonia Compressors (See Compressors—Ammonia)—

Anchor Clamps (See Clamps)—

Antimonial Leads—
Eagle Picher Lead Co.

Apparatus—Electric—
Westinghouse Electric & Mfg. Co.

Apparatus—Motor Control—
Westinghouse Electric & Mfg. Co.

Appraisers—
American Appraisal Co.

Asbestos Products—
Johns-Manville, Inc.

Automatic Screw Cutting Die Heads (See Die Heads)—

B

Babbitts—
Eagle-Picher Lead Co.
Ryerson, Jos. T. & Son, Inc.

Back Up Tongs (See Tongs)

Bailers—
Bridgeport Machine Co.
Oil Well Supply Co.
Spang & Co.

Balls and Seats—
Axelson Machine Co.
Bradford Motor Works.
Hough, Charles N., Mfg. Co.
Norris Brothers, Inc.
Northrup Equipment Co.

Balls—Bronze—
Atlas Ball Co.

Balls—Steel—
Atlas Ball Co.
Strom Steel Ball Co.

Band Wheels—Steel—
International Derrick & Equipment Co.
Moore, Lee C. & Co., Inc.
Parkersburg Rig & Reel Co.

Barrels—
Columbian Steel Tank Co.
Petroleum Iron Works Co.

Batteries—
National Carbon Co.

Belting—
Bridgeport Machine Co.
Fenwick-Reddaway Mfg. Co.
Frick-Reid Supply Co.
Imperial Belting Co.
International Supply Co.
Lufkin Foundry & Machine Co.
Murray Rubber Co.
Stanley Belting Corp.

Belting—Rubber—
Bovaird Supply Co.
Goodyear Tire & Rubber Co.

Belt Lacing—
Flexible Steel Lacing Co.

Bits—Disc—
U. S. Tool Co.

Bits—Fish Tail—
Federal Supply Co.
Lucey Mfg. Corp.

Bits—Rotary Disc—
Hughes Tool Co.

Bits—Rotary Rock—
Hughes Tool Co.
Reed Roller Bit Co.

Bit Steel (See Steel—Bit)—

Blow-off Valves (See Valves)—

Blowout Preventer—
Regan Forge & Engineering Co.
Stearns-Roger Mfg. Co.

Blowpipes—
Oxweld Acetylene Co.

Boiler Feed Pumps (See Pumps)

Boilers—Oil Country—
Bovaird & Seyfang Mfg. Co.
Bridgeport Machine Co.
Continental Supply Co.
Donovan Boiler Works.
Frick-Reid Supply Co.
International Supply Co.
Kewanee Boiler Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.
Pattin Bros. Co.
Republic Supply Co.
Titusville Iron Works.

Boilers—Horizontal Return Tubular—
Kewanee Boiler Co.
Vogt, Henry, Machine Co.

Bolted Tanks (See Tanks)—

Bolts and Nuts—
Kansas City Bolt & Nut Co.

Bolt Threading Die Heads (See Die Heads)—

Bolt Threading Machines—
Landis Machine Co.
Oster Mfg. Co.

Bottles—Glass—
Illinois Glass Co.

Box and Pin Steel—
Heppenstall Forge & Knife Co.

Braces—Floor Circle—
Dunn Mfg. Co.

Break Out Tongs (See Tongs)—

Brick—Fire—
Plibrico Jointless Firebrick Co.

Bronze Valves (See Valves—Brass and Bronze)—

Buckets—
Columbian Steel Tank Co.

Buildings—Metal, Sectional (All Types)—
Austin Co.
Blaw-Knox Co.
Braden Co.
Butler Mfg. Co.
International Derrick & Equipment Co.
Swartwout Co.
Truscon Steel Co.

Bulk Stations Tanks (See Tanks)

Bull Rones—
Ajax Rope Co., Inc.
Columbian Rope Co.
Wall Rope Works, Inc.

Bull Wheels—Steel—
Bradford Rig & Reel Co.
Carnegie Steel Co.
International Derrick & Equipment Co.
Moore, Lee C. & Co., Inc.
Parkersburg Rig & Reel Co.

Burners—Gas—
Gould Burner Co.
Okmulgee Boiler & Welding Works.

Burners—Oil—
Baker Motors, Inc.
Continental Supply Co.
Reid, Joseph, Gas Engine Co.

Bushings—Rotary Drive—
Wilson Oil Tools Corp.

C

Cable Bit Steel—
Federal Supply Co.
Heppenstall Forge & Knife Co.

Cables—Drilling, Manilla—
Ajax Rope Co., Inc.
Columbian Rope Co.
Frick-Reid Supply Co.
Republic Supply Co.
Wall Rope Works, Inc

Cables—Steel—
Ajax Rope Co., Inc.
American Cable Co.
Black Steel & Wire Co.
Broderick & Bascom Rope Co.
Bridgeport Machine Co.
Continental Supply Co.
Frick-Reid Supply Co.
Hazard Mfg. Co.
Leschen, A. & Sons Rope Co.
Longhart Supply Co.
National Supply Co.
Republic Supply Co.
Wickwire-Spencer Steel Corp.

Calf Rope—
Ajax Rope Co., Inc.
Columbian Rope Co.

Calf Wheels—Steel—
International Derrick & Equipment Co.
Moore, Lee C. & Co., Inc.

Cannon—Oil Field—
Braden Co.

Cans—Carrying—
Columbian Steel Tank Co.

Cans—Water—
Gott, H. P. Mfg. Co.

Carbon—Black Diamond.
Diamond Drill Carbon Co.

Cars—Tank—
American Car & Foundry Co.
General American Tank Car Corp.

Cars—Tank, Leased—
American Car & Foundry Co.
North American Car Co.

Casing—
Bovaird Supply Co.
Continental Supply Co.
Jarecki Mfg. Co.
National Supply Co.
National Tube Co.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Superior Tube Co.

Casing—Wrought Iron—
Reading Iron Co.
South Chester Tube Co.

Casing Connections—
Bridgeport Machine Co.

Casing Elevators (See Elevators, Casing and Tubing)—

Casinghead Gasoline Equipment—(See Natural Gasoline Plant Equipment)—

Casing Head—Control—
Oil Well Improvements Co.

Casing Heads—
Dresser S. R. Mfg. Co.
Kansas City Hay Press Co.
Oil Well Improvements Co.

Casing Lines—
Ajax Rope Co., Inc.

Casing Packers (See Packers)—

Casing Pulleys (See Pulleys)—

Casing Shoes—
Baker Casing Shoe Co.
Bartlesville Supply Co.
Bridgeport Machine Co.
Guiberson Corp.
Oil Well Supply Co.

Casing Tongs (See Tongs)—

Casing Tools—
Bridgeport Machine Co.

Castings—Alloy Steel—
Ohio Steel Foundry Co.
Sivyer Steel Casting Co.

Castings—Brass—
Progressive Brass Mfg. Co.

Castings—Chrome Nickel Steel—
Sivyer Steel Casting Co.

Castings—Corrosion Resisting Non Ferrous—
Hills-McCanna Co.

Castings—Electric Steel—
Ohio Steel Foundry Co.
Sivyer Steel Casting Co.

Castings—Grey Iron—
Ajax Iron Works.
American Car & Foundry Co.
Cunningham Co.
Gaso Pump & Burner Mfg. Co.

Castings—Steel—
Ajax Iron Works.
Chicago Steel Foundry Co.
Ohio Steel Foundry Co.
Nugent Steel Casting Co.
Sivyer Steel Casting Co.
St. Louis Steel Casting Co.

Cement—Fire & High Temperature—
Botfield Refractories Co.

Cement—Portland—
Monarch Cement Co.

Centrifugal Pumps (See Pumps)—

Chain Pipe Tongs (See Tongs)—

Chains—Conveying—
Chain Belt Co.
Link-Belt Co.

Chains—Oil Well—
Chain Belt Co.
Link-Belt Co.
Lufkin Foundry & Machine Co.

Chains—Power Transmission—
Chain Belt Co.
Link-Belt Co.

Check Valves (See Valves)—

Chemical Glassware for Laboratory Use (See Glassware)—

Chemical Treatment Crude Oil Emulsion—
Barnickel, Wm. S. & Co.

Chemical Treatment for Cleaning Out Wells—
Berwald Chemical Co.

Chrome Nickel Steel Castings (See Castings)—

Circulating Heads—
Wilson Oil Tools Corp.

Clamps—Anchor—
Bartlesville Supply Co.

Clamps—Belt—
Federal Supply Co.

Clamps—Collar Leak—
Dayton Pipe Coupling Co.
Dresser, S. R. Mfg. Co.

Clamps—Hoisting—
Newton Process Mfg. Co.

Clamps—Pipe—
Dayton Pipe Coupling Co.
Dresser, S. R. Mfg. Co.

Clamps—River—
Dresser, S. R. Mfg. Co.
Gaso Pump & Burner Mfg. Co

Cocks—Brass and Iron—
Lunkenheimer Co.
Walworth Mfg. Co.

Cocks—Plug—
Homestead Valve Mfg. Co.

Cocks—Water Gauge—
Smith Separator Co.

Coils and Bends—Pipe—
Harrisburg Pipe & Pipe Bending Co.
Midwest Piping & Supply Co.

Collar Leak Clamps—(See Clamps)

Compounds—Boiler—
Dearborn Chemical Co.

Compressor Cylinders (See Cylinders—Compressor)—

Compressors—Air—
Bessemer Gas Engine Co.
Clark Brothers Co.
Cooper, C. & G. Co.
Gardner Governor Co.
Sullivan Machinery Co.
Worthington Pump & Machinery Corp.

Compressors—Ammonia—
Carbondale Machine Co.
Cooper, C. & G. Co.

Compressors — Direct Connected Motor and Gas Engine Driven
Buffalo Gasolene Motor Co.
Clark Brothers Co.
Cooper, C. & G. Co.
Miller Improved Gas Engine Co.

Compressors—Direct Driven Air and Gas—
Bessemer Gas Engine Co.
Miller Improved Gas Engine Co.

Compressors—Gas—
Bessemer Gas Engine Co.
Chicago Pneumatic Tool Co.
Clark Brothers Co.
Cooper, C. & G. Co.
Hope Engineering & Supply Co.
Ingersoll-Rand Co.
National Transit Pump & Machine Co.

Compressors—Portable—
Ingersoll-Rand Co.

Condenser Boxes—
Kaw Boiler Works Co.
Petroleum Iron Works Co.

Condensers—
Southwestern Engineering Co., Inc.

Consulting and Contracting Engineers (See Engineers)—

Controllers—Liquid Level—
Fisher Governor Co., Inc.
Newton Process Mfg. Co.
Smith Separator Co.

Controllers—Pressure—
Smith Separator Co.

Controllers—Temperature—
Brown Instrument Co.
Foxboro Co., Inc.
Tagliabue, C. J., Mfg. Co.
Taylor Instrument Co.

Conveyors—Portable Belt—
Barber-Greene Co.

Cooling Towers—Atmospheric—
Braun, C. F. & Co.

Cordage—
Bridgeport Machine Co.
Continental Supply Co.
Frick-Reid Supply Co.
International Supply Co.
Wall Rope Works, Inc.

Core Drilling—
Longyear, E. J. Co.
Mineral Exploration Co.
Spengler Core Drilling Co.

Core Drills—Diamond—
Longyear, E. J. Co.
Sullivan Machinery Co.

Coring Tools—
Reed Roller Bit Co.
Spengler Core Drilling Co.
Wilson Oil Tools Corp.

Couplings—Flexible—
Nuttall, R. D. & Co.

Couplings—Plain End Pipe—
Dayton Pipe Coupling Co.
Dresser, S. R. Mfg. Co.

Couplings—Seamless Steel—
Harrisburg Pipe & Pipe Bending Co.
Superior Tube Co.

Couplings—Steel for Casing, Line Pipe, Drill Pipe and Tubing—
Dayton Pipe Coupling Co.

Corrugated Sheets, Black and Galvanized (See Sheets)—

Cracking Processes—
Gravey Corp.
Kellogg, M. W. Co.
Universal Oil Products Co.

Crawler Threads—
Full-Crawler Co.

Crown Blocks—
International Derrick & Equipment Co.
Lucey Mfg. Corp.
Lufkin Foundry & Machine Co
Moore, Lee C. & Co., Inc.
Parkersburg Rig & Reel Co.
Slater Brothers Turnbuckle Derrick Co.

Cups—Leather—
Auer, C. A.

Cutters—Pipe—
Borden Co.
Trimont Mfg. Co.

Cylinders—Compressor—
Hope Engineering & Supply Co.

Cylinder Stocks—
Barnsdall Refining Co.
Pure Oil Co.
The Texas Co.

D

Dehydrating Process—
Barnickel, Wm. S. & Co.

Dephlegmators—
Newton Process Mfg. Co.

Depletion Reports—
American Appraisal Co.

Derricks—Steel—
Carnegie Steel Co.
Emsco Steel Products Co.
International Derrick & Equipment Co.
Moore, Lee C. & Co., Inc.
O'Brien Steel Construction Co.
Parkersburg Rig & Reel Co.
Slater Bros. Turnbuckle Derrick Co.
Superior Tube Co.

Derricks—Turnbuckle—
National Turnbuckle Derrick Co.
Slater Bros Turnbuckle Derrick Co.

Diamond Core Drills (See Core Drills—Diamond)—

Diamonds for Core Drilling—
Diamond Drill Carbon Co.
Patrick, R. S.

Die Heads—Automatic Screw Cutting—
Landis Machine Co.

Die Heads—Bolt Threading—
Bignall & Keeler Machine Works.
Landis Machine Co.

Die Heads — Stationary Pipe Threading—
Bignall & Keeler Machine Works.
Landis Machine Co.
Standard Engineering Co.

Diesel Engines (See Engines)—

Dies—Pipe Threading—
Bignall & Keeler Machine Works.
Borden Co.
Cox & Sons Co.
Landis Machine Co.
Nye Tool & Machine Works.
Standard Engineering Co.

Differential Pressure Recorders (See Recorders)—

Direct Driven Pumps (See Pumps)

Disc Bits (See Bits—Disc)

Dissolved Acetylene (See Acetylene)—

Distillate—
Acme Petroleum Co.

Ditchers—Pipe Line—
Barber-Greene Co.
Buckeye Traction Ditcher Co.

Draw Works—
Lucey Mfg. Corp.
Lufkin Foundry & Machine Co.
National Supply Co.
Titusville Iron Works Co.

Drillers Hose (See Hose)—

Drilling and Fishing Tools—
Acme Fishing Tool Co.
Baash-Ross Tool Co.
Bovaird & Seyfang Mfg. Co.
Bovaird Supply Co.
Bridgeport Machine Co.
Burns Tool Co.
Continental Supply Co.
Hinderliter Tool Co.
Hughes Tool Co.
International Supply Co.
Larkin & Co.
Leidecker Tool Co.
Lucey Mfg. Corp.
Oil Well Supply Co.
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Spang & Co.
Star Drilling Machine Co.
U. S. Tool Co.

Drilling Engines (See Engines)—

Drilling Equipment—
Clark Brothers Co.
Hughes Tool Co.
O'Brien Steel Construction Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.
Reed Roller Bit Co.

Drilling Gate Valves (See Valves)

Drilling Machines—
Bridgeport Machine Co.
Leidecker Tool Co.
Oil Well Supply Co.
Star Drilling Machine Co.

Drilling Tools (See Drilling and Fishing Tools)—

Drilling Valves (See Valves)—

Drills—Portable, Air—
Chicago Pneumatic Tool Co.

Drills—Portable Electric—
Chicago Pneumatic Tool Co.

Drive Shoes—
Bartlesville Supply Co.
Larkin & Co.

Drop-Forged Wrenches (See Wrenches)—

Drop and Seats—
Norris Brothers, Inc.

Drums (See Barrels)—

Dynamos—
Westinghouse Electric & Mfg. Co.

E

Electrical Equipment—
Fairbanks-Morse & Co.
Pyle National Co.
Wico Electric Co.

Electric Apparatus (See Apparatus—Electric)—

Electric Drilling Equipment—
Lucey Mfg. Corp.
Westinghouse Electric & Mfg. Co.

Electric Pumping and Pulling Motors (See Pumping and Pulling Motors—Electric)—

Electric Steel Castings — (See Castings—Electric Steel)—

Elevators—Casing and Tubing—
Bovaird Supply Co.
Bridgeport Machine Co.
Dunn Mfg. Co.
Lucey Mfg. Corp.
Oil Well Supply Co.
Wilson Oil Tools Corp.

Elevators—Rod—
Foggan, Geo. N.

Enamels—
Sherwin-Williams Co.

Engineers—Consulting and Contracting—
Hope Engineering & Supply Co.
Kellogg, M. W. Co.
Power Specialty Co.
Westcott & Greis.

Engineers—Fire Protection—
Foamite-Childs Corp.

Engineers—Oil Buildings—
Austin Co.
International Derrick & Equipment Co.

Engineers—Oil Treating—
Barnickel, Wm. S. & Co.

Engines—Crude Oil—
Power Mfg. Co.
Western Machinery Co.

Engines—Diesel—
Bessemer Gas Engine Co.
Busch-Sulzer Bros. Diesel Engine Co.
Foos Gas Engine Co.
McIntosh & Seymour Corp.
Western Machinery Co.
Worthington Pump & Machinery Corp.

Engines—Drilling—
Ajax Iron Works.
Bessemer Gas Engine Co.
Bovaird & Seyfang Mfg. Co.
Buda Co.
Buffalo Gasolene Motor Co.
Clark Brothers Co.
Continental Supply Co.
Franklin Valveless Engine Co.
Hercules Motor Corp.
Lufkin Foundry & Machine Co.
Pattin Bros. Co.
Power Mfg. Co.
Republic Supply Co.
Titusville Iron Works Co.

Engines—Gas—
Bessemer Gas Engine Co.
Bruce-MacBeth Engine Co.
Buda Co.
Buffalo Gasolene Motor Co.
Chicago Pneumatic Tool Co.
Clark Brothers Co.
Cooper, C. & G. Co.
Foos Gas Engine Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hope Engineering & Supply Co.
Ingersoll-Rand Co.
International Supply Co.
Jones, S. M. Co.
Miller Improved Gas Engine Co.
National Supply Co.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Pattin Bros. Co.
Reid, Joseph Gas Engine Co.
Titusville Iron Works Co.
Waukesha Motor Co.
Western Machinery Co.

Engines—Gasoline—
Buda Co.
Buffalo Gasolene Motor Co.
Climax Motors Corp.
Continental Motors Corp.
Fairbanks-Morse & Co.
International Harvester Co. of America.
Novo Engine Co.
Waukesha Motor Co.
Western Machinery Co.

Engines—Oil—
Bessemer Gas Engine Co.
De La Vergne Machine Co.
Fairbanks-Morse & Co.
Franklin Valveless Engine Co.
International Harvester Co. of America.
McIntosh & Seymour Corp.
National Supply Co.
Oil Well Supply Co.
Reid, Joseph, Gas Engine Co.
Western Machinery Co.

Engines—Rotary Steam—
Baker Motors, Inc.

Engines—Semi-Diesel, Oil—
Chicago Pneumatic Tool Co.
Power Mfg. Co.

Engines—Steam—
Ajax Iron Works.
Baker Motors, Inc.
Frick-Reid Supply Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.

Evaporators—
Newton Process Mfg. Co.

Expansion Pistons (See Pistons)—

Extinguishers—Fire—
Foamite-Childs Corp.
Amdyco Corp.

F

Fabricators for Gasoline Plants and Refineries—
Stearns-Roger Mfg. Co.

Fence—Chain Link—
Page Fence & Wire Products Association.

Filters—
Metric Metal Works.

Fire Brick (See Brick)—

Fire Extinguishers (See Extinguishers)—

Fishing Tools (See Drilling and Fishing Tools)—

Fish Tail Bits (See Bits)—

Fittings — Dropped Forged Steel
Carbondale Machine Co.
Vogt, Henry, Machine Co.

Fittings—Malleable & Cast Iron
Bovaird Supply Co.
Crane Co.
Frick-Reid Supply Co.
Kelly & Jones Co.
Walworth Mfg. Co.

Fittings—Pipe—
American Cast Iron Pipe Co.
Dayton Pipe Coupling Co.
Dresser, S. R. Mfg. Co.
Gaso Pump & Burner Co.
Jarecki Mfg. Co.
Kellogg, M. W. Co.
Kennedy Valve Mfg. Co.
Lufkin Foundry & Machine Co.
Metric Metal Works.
Oil Well Supply Co.
Reading Steel Casting Co.
Republic Supply Co.
United Iron Works, Inc.

Fittings—Steel—
Dayton Pipe Coupling Co.
Kelly & Jones Co.
Ohio Steel Foundry Co.
Pittsburgh Reinforced Brazing & Machine Co.

Flanges—Brass, Iron and Steel—
Kelly & Jones Co.
Metric Metal Works.

Flange Unions—
Gaso Pump & Burner Mfg. Co.

Flashlights—
Delta Electric Co.
National Carbon Co.

Floating Roofs and Decks—
Chicago Bridge & Iron Works
Columbian Steel Tank Co.

Floodlights—
Pyle-National Co.

Floor Circle Braces (See Braces)

Force Feed Lubricators (See Lubricators)—

Forging Billets—
Harrisburg Pipe & Pipe Bending Co.
Heppenstall Forge & Knife Co.

Forgings—
Champion Machine & Forging Co.
Milwaukee Forge & Machine Co.

Friction Clutch Pulleys (See Pulleys)—

Fuel Oil (See Oil—Fuel)—

G

Gas and Oil Gate Valves (See Valves)—

Gas Compressors (See Compressors—Gas)—

Gas Engines (See Engines—Gas)

Gas Holders—
Chicago Bridge & Iron Works

Gaskets—
Garlock Packing Co.
McCord Radiator & Mfg. Co.

Gaskets—Fibre
Durabla Mfg. Co.

Gas Masks & Safety Appliances—
Mine Safety Appliance Co.

Gas Meters (See Meters)—

Gas Oil (See Oil—Gas)—

Gasoline—
Crown Central Petroleum Corp.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.

Gasoline—Natural—
Chestnut & Smith Corp.

Gasoline Plant Equipment—
Bessemer Gas Engine Co.
Chicago Bridge & Iron Works.
Clark Brothers Co.
Gaso Pump & Burner Mfg. Co.
Kellogg, M. W. Co.
Marietta Mfg. Co.
Newton Process Mfg. Co.

Gas Regulator Casinghead—
Davis Regulator Co.

Gas Regulators—
Chapin Fulton Mfg. Co.
Davis Regulator Co.
Fisher Governor Co.
Metric Metal Works.
Smith Separator Co.

Gas Scrubbers—
Newton Process Mfg. Co.

Gauge Glass—High Pressure—
Durabla Mfg. Co.

Gauge Poles—
Marsh Gauge Pole Co.

Gauges—Automatic Tank—
Oil Conservation Engineering Co.

Gauges—Pressure and Vacuum—
Bristol Co.
Foxboro Co., Inc.
Metric Metal Works.

Gauges—Test—
Metric Metal Works.

Gear Driven Pumps (See Pumps)

Gears—Cut—
Nuttall, R. D. & Co.

Gears—Reduction—
Nuttall, R. D. & Co.

Generators—
Westinghouse Electric & Mfg. Co.

Generators—Acetylene—
Oxweld Acetylene Co.

Generators—Steam—
Baker Motors, Inc.

Generators—Turbine—
Moon Manufacturing Co.
Pyle-National Co.
Westinghouse Electric & Mfg. Co.

Glass Bottles (See Bottles, Glass)

Glassware—Chemical for Laboratory Use—
Illinois Glass Co.

Governors—
Gardner Governor Co.

Governors—Boiler Feed—
Chaplin-Fulton Mfg. Co.
Fisher Governor Co.

Grey Iron Castings (See Castings)

H

Hammers—Chipping and Calking Pneumatic—
Chicago Pneumatic Tool Co.

Hammers—Riveting Pneumatic —
Chicago Pneumatic Tool Co.

Hangers—Iron and Steel—
Dodge Mfg. Corp.

Hatches—Gauge and Thief—
Oil Conservation Engineering Co.

Heat Exchangers—
Carbondale Machine Co.
Griscom-Russell Co.
Hope Engineering & Supply Co.
Newton Process Mfg. Co.
Southwestern Engineering Co., Inc.

Heat Interchangers—Fluid—
Braun, C. F. & Co.

Heat Treatment for Cleaning Out Flow Lines, Tanks, Etc.—
Berwald Chemical Co.

High Pressure Gate Valves (See Valves)—

Hoists—Pneumatic, Geared and Universal—
Chicago Pneumatic Tool Co.
Yale & Towne Mfg. Co.

Hoists—Portable—
Wright Mfg. Co.
Yale & Towne Mfg. Co.

Hoists—Well Pulling—
Emsco Steel Products Co.

Hose—
Fenwick-Reddaway Mfg. Co.

Hose—Drillers—
Goodrich, B. F. Rubber Co.

Hose—Oil Suction and Discharge
Goodrich, B. F., Rubber Co.

Hose—Rubber—
Goodyear Tire & Rubber Co.

Hot Rolled Strip Steel (See Steel)

Hydraulic Gate Valves (See Valves)—

Hydraulic Jacks (See Jacks)—

I

Insulation Materials—
Celite Products Co.
Johns-Manville, Inc.

Insurance—Fire—
Oil Insurance Association.

Insurance—Tornado—
Oil Insurance Association.

J

Jacks—Hydraulic—
Bridgeport Machine Co.

Jacks—Lifting—
Templeton, Kenly & Co., Ltd.

Jacks—Pumping—
American Well Works.
Bessemer Gas Engine Co.,
Braden Co.
Frick-Reid Supply Co.
Jones, S. M. Co.
Kansas City Hay Press Co.
Spang & Co.

Jars—
Bridgeport Machine Co.
Spang & Co.

Jar Steel—
Heppenstall Forge & Knife Co.

K

Kerosene—
Acme Petroleum Co.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.

L

Lacquers—
Sherwin-Williams Co.

Lanterns—Electric—
Delta Electric Co.

Lanterns—Hand—
Delta Electric Co.

Lead and Mixed Metal Products—
Eagle-Picher Lead Co.

Lead in Oil—
Eagle-Picher Lead Co.
National Lead Co.

Lead Wool and Containers—
Eagle-Picher Lead Co.

Lifting Jacks (See Jacks)—

Lightning Equipment—
Climax Engineering Co.
Pyle National Co.
Westinghouse Electric & Mfg. Co.

Liquid Level Controls (See Controllers)—

Litharge—
Eagle-Picher Lead Co.
National Lead Co.

Loaders—Trucks—
Barber-Greene Co.

Long Distance Telephone—
American Telephone & Telegraph Co.

Lubricating Devices—
McCord Radiator & Mfg. Co.

Lubricating Oils (See Oils)—

Lubricators—
Ajax Iron Works.
Lunkenheimer Co.

Lubricators—Force Feed—
Manzel Brothers Co.
McCord Radiator & Mfg. Co.

M

Machine Tools—
Ryerson, Joa. T., & Son, Inc.

Manholes—Tank—
Oil Conservation Engineering Co.

Manifolds—
Reid, Joseph, Gas Engine Co.

Metal Buildings Sectional (All Types—See Buildings)—

Meters—Gas—
Foxboro Co., Inc.
Metric Metal Works.
Pittsburgh Meter Co.
Roots, P. H. & F. M. Co.
Westcott & Greis.

Meters—Gasoline—
Pittsburgh Meter Co.

Meters—Oil—
Pittsburgh Meter Co.

Molded Goods—Rubber—
Goodyear Tire & Rubber Co.

Motor Controlled Apparatus (See Apparatus—Motor Control)—

Motors—Electric—
Fairbanks-Morse & Co.
Westinghouse Electric & Mfg. Co.

Motors—Gasoline (See Engines Gasoline)—

Motor Trucks (See Trucks — Motor)—

N

Naphtha—
Pure Oil Co.

Natural Gasoline (See Gasoline—Natural)—

Natural Gasoline Plant Equipment
American Tank Co.
Chaplin-Fulton Mfg. Co.
Continental Supply Co.
Cooper, C. & G. Co.
Griscom-Russell Co.
Roots, P. H. & F. M. Co.
Smith Separator Co.
Westcott & Greis.

Nitrogen—
Linde Air Products Co.

O

Oil and Gas Pipe Line Construction—
Hope Engineering & Supply Co.

Oil Burners (See Burners—Oil)—

Oil Engines, Semi-Diesel (See Engines—Semi-Diesel Oil)—

Oil Field Equipment—
Baash-Ross Tool Co.
Baker Casing Shoe Co.
Bridgeport Machine Co.
Continental Supply Co.
Cunningham Co.
Gaso Pump & Burner Mfg. Co.
International Derrick & Equipment Co.
Iron King Mfg. Co.
Kau Boiler Works Co.
National Supply Co.
Oil Well Supply Co.
Parkersburg Machine Co.
Parkersburg Rig & Reel Co.
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Reid, Joseph, Gas Engine Co.
Republic Supply Co.
Trumble Gas Trap Co.

Oil Filters—
Burt Mfg. Co.

Oil—Fuel—
Acme Petroleum Co.
Crown Central Petroleum Corp.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.
The Texas Co.

Oil—Gas—
Acme Petroleum Co.
Crown Central Petroleum Corp.
Gulf Refining Co.
Pure Oil Co.
Sinclair Refining Co.
The Texas Co.

Oil—Lubricating—
Barnsdall Refining Co.
Crown Central Petroleum Corp.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pennzoil Co.
Pure Oil Co.
Sinclair Refining Co.
The Texas Co.

Oil—Tractor—
Barnsdall Refining Co.
Gulf Refining Co.
Pennzoil Co.
Pure Oil Co.

Oiling Devices—
Lunkenheimer Co.

Oil Meters (See Meters)—

Oil Piping Equipment (See Fittings)—

Oil Reclaiming Process—
Barnickel, Wm. S. & Co.
Houston Pump & Supply Co.

Oil Refinery Equipment (See Refinery Equipment)—

Oil Savers—
Oil Well Improvements Co.

Oil Securities (See Securities)—

Oil Suction and Discharge Hose (See Hose)—

Oil Testing Instruments—
Taglabue, C. J. Mfg. Co.

Oil Well Cementing—
Halliburton, Erle P.

Oil Well Screens (See Screens)—

Oil Well Tools—
Dunn Mfg. Co.
Hinderliter Tool Co.
Reed Roller Bit Co.
Star Drilling Machine Co.
Titusville Forge Co.
U. S. Tool Co.

Over Shots—
Reed Roller Bit Co.
Regan Forge & Engineering Co.

Oxygen—
Linde Air Products Co.

P

Packer Release—
Acme Fishing Tool Co.

Packers—
Guiberson Corp.
Larkin & Co.
Layne & Bowler Co.
Oil Well Supply Co.
Regan Forge & Engineering Co.
Spang & Co.

Packing—
Durabla Mfg. Co.
Garlock Packing Co.
Goodrich, B. F., Rubber Co.
Imperial Belting Co.
Johns-Manville, Inc.

Paints—
Aluminum Co. of America.
Continental Supply Co.
Cook Paint & Varnish Co.
Detroit Graphite Co.
Eagle-Picher Lead Co.
Sherwin-Williams Co.

Paraffin Wax Plant Equipment—
Carbondale Machine Co.

Pipe—Cast Iron—
American Cast Iron Pipe Co.
Continental Supply Co.
Greenspon's, Jos., Sons Iron & Steel Co.
International Supply Co.
U. S. Cast Iron Pipe & Fdy. Co.

Pipe—Lead Chemical and Antimonial—
Eagle-Picher Lead Co.

Pipe—Steel—
Greenspon's, Jos., Sons Iron & Steel Co.
Jarecki Mfg. Co.
Kellogg, M. W. Co.
National Supply Co.
National Tube Co.
Republic Iron & Steel Co.
Ryerson, Jos. T. & Son, Inc.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Superior Tube Co.

Pipe—Wrought Iron—
Frick-Reid Supply Co.
Greenspon's, Jos., Sons Iron & Steel Co.
Oil Well Supply Co.
Reading Iron Co.
Superior Tube Co.

Pipe and Nipple Threading Machines—
Bignall & Keeler Machine Works.
Cox & Sons Co.
Landis Machine Co.
Ryerson, Jos. T. & Son, Inc.
Standard Engineering Co.

Pipe Clamps (See Clamps—Pipe)

Pipe Fittings (See Fittings)—

Pipe Grips—
Larkin & Co.

Pipe Headers—
National Tube Co.
Newton Process Mfg. Co.

Pipe Line Construction Tools—
National Transit Pump & Machine Co.

Pipe Line Ditchers (See Ditchers)

Pipe Line Equipment—
Gaso Pump & Burner Mfg. Co.

Pipe Screwing Machines—
Buckeye Traction Ditcher Co.

Pipe Suspension Device—
Stearns-Roger Mfg. Co.

Pipe Threading Dies (See Dies)—

Pipe Tools—
Armstrong Brothers Tool Co.
Nye Tool & Machine Works.

Piping—Fabricated—
Kelly & Jones Co.
Midwest Piping & Supply Co.

Piping—Steel & Iron—
Crane Co.
Greenspon's, Jos., Sons Iron & Steel Co.
Power Piping Co.
United Iron Works.

Pistons—
Guiberson Corp.
Heppenstall Forge & Knife Co.

Pistons—Expansion—
Wilson Oil Tools Corp.

Pistons—Slush Pump—
Guiberson Corp.

Plain End Pipe Couplings (See Couplings—Plain End Pipe)—

Plugs—Bottom Water—
Guiberson Corp.

Polish Rods (See Rods—Polish)—

Portable Drilling Rigs (See Rigs)

Power Pulley—
Jones Oil Well Reamer Co.

Power Pumps (See Pumps)—

Power Units—Portable (See Engines)—

Pre-Heaters—
Newton Process Mfg. Co.

Pulleys—Casing—
Bridgeport Machine Co.

Pulleys—Friction Clutch—
Havana Mfg. Co.

Pulleys—Wood, Iron and Steel—
Dodge Mfg. Corp.

Pulling Machines—
Iron King Mfg. Co.
National Supply Co.
Safety Pulling Machine Co.

Pumping and Pulling Motors—Electric—
Westinghouse Electric & Mfg. Co.

Pumping Equipment—
American Well Works.
Axelson Machine Co.
Goulds Mfg. Co.
Jones, S. M., Co.
Myers, F. E., Bro. & Co.
Northrup Equipment Co.
Oil Well Supply Co.
Prescott Co.
Waukesha Motor Co.

Pumping Hangers—
Bridgeport Machine Co.

Pumping Jacks (See Jacks)—

Pumping Gear Units—
Nuttall, R. D. & Co.

Pumping Powers—
Aldrich Pump Co.
Bessemer Gas Engine Co.
Buda Co.
Climax Engineering Co.
Frick-Reid Supply Co.
Jones, S. M. Co.
Kansas City Hay Press Co.
National Supply Co.
Oil Well Supply Co.
Pattin Bros. Co.
Reid, Joseph, Gas Engine Co.
Spang Machine Co.
Titusville Iron Works Co.

Pumps—Air Lift—
IngersollRand Co.

Pumps—Boiler Feed—
Ajax Iron Works.
Fairbanks-Morse & Co.
Gardner Governor Co.
Oil Well Supply Co.
Worthington Pump & Machinery Corp.

Pumps—Centrifugal—
American Well Works.
Dean Hill Pump Co.
Fairbanks-Morse & Co.
Worthington Pump & Machinery Corp.

Pumps—Direct Driven—
Aldrich Pump Co.
Bessemer Gas Engine Co.

Pumps—Electric—
Prescott Co.

Pumps—Fuel Oil Service—
Aldrich Pump Co.
Blackmar Rotary Pump Co.
Northern Fire Apparatus Co.

Pumps—Fuel Oil Transfer—
Aldrich Pump Co.

Pumps—Gear Driven—
Aldrich Pump Co.
Gaso Pump & Burner Mfg. Co.
Lucey Mfg. Corp.
Prescott Co.

Pumps—Pipe Line —
Aldrich Pump Co.
Frick-Reid Supply Co.
Gardner Governor Co.
National Transit Pump & Machine Co.
Prescott Co.
Worthington Pump & Machinery Corp.

Pumps—Power—
Aldrich Pump Co.
Dean Brothers Co.
Fairbanks-Morse & Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Myers, F. E. Bro. & Co.
National Transit Pump & Machine Co.
Novo Engine Co.
Prescott Co.
Waukesha Motor Co.
Worthington Pump & Machinery Corp.

Pumps—Refinery—
Aldrich Pump Co.
Dean Hill Pump Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Kinney Mfg. Co.
National Transit Pump & Machine Co.
Northern Fire Apparatus Co.
Worthington Pump & Machinery Corp.

Pumps—Rotary—
Blackmer Rotary Pump Co.
Northern Fire Apparatus Co.
Roots, P. H. & F. M., Co.

Pumps—Sand—
Bridgeport Machine Co.
Larkin & Co.

Pumps—Slush—
Gardner Governor Co.

Pumps—Steam —
Dean Brothers Co.
Fairbanks-Morse & Co.
Frick-Reid Supply Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Lucey Mfg. Corp.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Prescott Co.
Vogt Brothers Mfg. Co.

Pumps—Suction—
Gaso Pump & Burner Mfg. Co.

Pumps—Vacuum—
Bessemer Gas Engine Co.
Clark Brothers Co.
Gaso Pump & Burner Mfg. Co.
Miller Improved Gas Engine Co.
Roots, P. H. & F. M. Co
Worthington Pump & Machinery Corp.

Pumps—Water—
Aldrich Pump Co.
American Well Works.
Gaso Pump & Burner Mfg. Co
Northern Fire Apparatus Co.
Prescott Co.

Purifiers—Oil Absorption—
Sharples Specialty Co.

Pyrometers—
Brown Instrument Co.

R

Ratchet Pipe Cutters—
Toledo Pipe Threading Machine Co.

Ratchet Pipe Threaders—
Toledo Pipe Threading Machine Co.

Ratchet Stocks and Dies—
Toledo Pipe Threading Machine Co.

Ratchet Wrenches (See Wrenches)

Reamers—
Bridgeport Machine Co.
Jones Oil Well Reamer Co.

Receiving Boxes—
Reid, Joseph, Gas Engine Co.

Recorders—Differential Pressure—
Metric Metal Works.

Refinery Equipment—
American Radiator Co.
Braun, C. F. & Co.
Carbondale Machine Co.
Chicago Bridge & Iron Works
Graver Corp.
Griscom-Russell Co.
Kellogg, M. W. Co.
Newton Process Mfg. Co.
Petroleum Iron Works Co.
Power Piping Co.
Power Specialty Co.
Ross-Meehan Foundries.
Reid, Joseph, Gas Engine Co.
Smith Separator Co.
Southwestern Engineering Co. Inc.
United Iron Works, Inc.
Universal Oil Products Co.
Vogt, Henry, Machine Co.
Walsh & Weidner Boiler Co.
Westcott & Greis.

Refinery Pumps (See Pumps)—

Refractories—Furnace, Stills and Baffles—
Botfield Refractories Co

Refrigerating Machinery—
Carbondale Machine Co.
Climax Engineering Co.
United Iron Works, Inc.
Vogt, Henry, Machine Co.

Regulators—
Fisher Governor Co., Inc.
Oil Conservation Engineering Co.
Smith Separator Co.

Rental Service—
Bridgeport Machine Co.

Reversible Clutches—
Bessemer Gas Engine Co.

Rig Irons—
Bradford Rig & Reel Co.
International Supply Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.

Rigs—Drilling, All Steel—
Carnegie Steel Co.
Emsco Steel Products Co.
International Derrick & Equipment Co.
Moore, Lee C., & Co. Inc.

Rigs—Portable Drilling—
National Supply Co.
National Turnbuckle Derrick Co.
Star Drilling Machine Co.

River Clamps (See Clamps)—

Rods—Polish—
Bradford Motor Works.
Jones, S. M., Co.

Rods—Pull—
Axelson Machine Co.
Columbus Sucker Rod Co.
Jones, S. M. Co.
Kansas City Bolt & Nut Co.

Rods—Sucker—
Axelson Machine Co.
Columbus Sucker Rod Co.
D. & B. Pump & Supply Co.
Frick-Reid Supply Co.
Jones, S. M., Co.
Kansas City Nut & Bolt Co.
National Supply Co.
Oil Well Supply Co.
Republic Supply Co.

Rods—Valve—
Jones, S. M., Co.

Roofing—
Johns-Manville, Inc.

Roofing—Tin Plates (See Tin Plates—Roofing)—

Rope Socket Metal—
Eagle-Picher Lead Co.

Rope—Manilla—
Ajax Rope Co., Inc.
Bovaird Supply Co.
Republic Supply Co.
Wall Rope Works, Inc.

Rope—Wire—
Ajax Rope Co., Inc.
American Cable Co.
Bovaird Supply Co.
Broderick & Bascom Rope Co.
Bridgeport Machine Co.
International Supply Co.
Jarecki Mfg. Co.
Leschen, A. & Sons Rope Co.
Wickwire-Spencer Steel Corp.

Rotary Bit Steel—
Heppenstall Forge & Knife Co.

Rotary Disc Bits (See Bits)—

Rotary Drilling Equipment—
Climax Engineering Co.
Continental Supply Co.
Frick-Reid Supply Co.
International Derrick & Equipment Co.
Link-Belt Co.
Lucey Mfg. Corp.
Lufkin Foundry & Machine Co.
National Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Titusville Iron Works Co

Rotary Drive Bushings (See Bushings—Rotary Drive)—

Rotary Lines (See Rope—Wire)—

Rotary Post—
Reed Roller Bit Co.

Rotary Rock Bits (See Bits)—

Rotary Tool Joints—
Bartlesville Supply Co.
Hughes Tool Co.

Rotary Ventilators—(See Ventilators)—

Rubber Belting (See Belting)—

Rubber Hose (See Hose)—

Run Down Tanks (See Tanks)—

Rust Preventatives—
Dearborn Chemical Co.
Eagle-Picher Lead Co.

S

Sand Line Caps—
Oil Well Improvements Co.

Sand Lines—Manilla—
Ajax Rope Co., Inc.

Sand Lines—Wire—
Ajax Rope Co., Inc.
Broderick & Bascom Rope Co.
Wickwire-Spencer Steel Corp.

Sand Pumps (See Pumps, Sand)

Screens—Oil Well—
Layne & Bowler Co.

Screens—Water Well—
Layne & Bowler Co.

Screws—Temper—
Burns Tool Co.

Seamless Steel Couplings (See Couplings—Seamless Steel)—

Securities—Oil—
Pforzheimer, Carl H. & Co.

Separators—Centrifugal—
Miller, Max B. & Co.
Sharples Specialty Co.

Separators—Gas and Oil—
American Tank Co
Smith Separator Co.

Sheet Lead—Chemical and Antimonial—
Eagle-Picher Lead Co.

Sheets—Blue Annealed—
Kansas City Bolt & Nut Co.

Sheets — Corrugated, Black and Galvanized—
American Sheet & Tin Plate Co
Ryerson, Jos. T. & Son, Inc.

Sheets—Steel—
American Sheet & Tin Plate Co.
Republic Iron & Steel Co.

Sleeves—
Dayton Pipe Coupling Co.
Dresser, S. R. Mfg. Co.

Sleeves—Split—
Dayton Pipe Coupling Co.
Dresser, S. R. Mfg. Co.

Slush Pumps Pistons (See Pistons)—

Slush Pumps—(See Pumps)—

Smoke Stacks—
Donovan Boiler Works.

Sockets—
Acme Fishing Tool Co.
Bridgeport Machine Co.
Spang & Co.

Sockets—Wire Rope—
Chicago Steel Foundry Co.

Solders—Bar and Wire—
Eagle-Picher Lead Co.

Spark Plugs—
Mosler Metal Products Corp.

Spears—
Acme Fishing Tool Co.

Special Steel (See Steel—Special)

Split Sleeves (See Sleeves)—

Sprockets—Power Transmission—
Ajax Iron Works.
Chain Belt Co.

Stationary Pipe Threading Die Heads (See Die Heads)—

Steam Pumps—(See Pumps)—

Steel—All Kinds—
Ryerson, Jos. T., & Son. Inc.

Steel—Alloy—
Central Steel Co.

Steel—Bit—
Central Steel Co.

Steel—Hot Rolled Strip—
Central Steel Co.

Steel—Special—
Central Steel Co.

Steel Band Wheels (See Band Wheels—Steel)—

Steel Bridges—(See Bridges)—

Steel Bull Wheels—(See Bull Wheels—Steel)—

Steel Castings (See Castings)—

Steel Couplings for Casing, Line Pipe, Drill Pipe and Tubing (See Couplings)—

Steel Crown Blocks (See Crown Blocks)—

Steel Derricks (See Derricks)—

Steel Fabricators—Structural—
Austin Co.
Braden Co.
Graver Corp.
International Derrick & Equipment Co.

Steel Fittings (See Fittings)—

Steel Pitmans—
International Derrick & Equipment Co.
Moore, Lee C., & Co., Inc.
Slater Brothers Turnbuckle Derrick Co.

Steel Plate Construction—
Chicago Bridge & Iron Works
Graver Corp.
Kaw Boiler Works Co.
Petroleum Iron Works Co.
Tulsa Boiler & Machinery Co.
Vogt, Henry, Machine Co.

Steel Sheets—(See Sheets, Steel)—

Steel Valves (See Valves—Steel)—

Steel Walking Beams (See Walking Beams—Steel)—

Steel Wheels and Tug Rims—
Carnegie Steel Co.
Emsco Steel Products Co.
International Derrick & Equipment Co.

Stills—
Blaw-Knox Co.
Chicago Bridge & Iron Works.
Graver Corp.
Kaw Boiler Works Co.
Kellogg, M. W. Co.
Petroleum Iron Works Co.
Vogt, Henry, Machine Co.

Stocks and Dies—
Toledo Pipe Threading Machine Co.

Structural Steel Fabricators (See Steel Fabricators)—

Stuffing Boxes—
Axelson Machine Co.
Kansas City Hay Press Co.

Sucker Rods (See Rods—Sucker—

Suction Pumps—(See Pumps)—

Sulphuric Acid—
Eagle-Picher Lead Co.

Swabs—
Guiberson Corp.
Hoffman Mfg. Co.

Swedge Nipples—
Dresser, S. R. Mfg. Co.
Harrisburg Pipe & Pipe Bending Co.

Swing Joints—
Oil Conservation Engineering Co.

Swivels—
Layne & Bowler Co.
Lucey Mfg. Corp.
Titusville Iron Works Co.

T

Tank Cars (See Cars—Tanks)—

Tank Cars Leased (See Cars)—

Tank Equipment—
Oil Conservation Engineering Co.
Westcott & Greis.

Tanks—Bolted—
American Tank Co.
Butler Mfg. Co.
Gants Tank Co.
Mahoney Tank Mfg. Co.
Parkersburg Rig & Reel Co.

Tanks—Bulk Station —
Columbian Steel Tank Co.
Graver Corp.

Tanks—Cylindrical—
Petroleum Iron Works Co.

Tanks—Elevated Steel—
Chicago Bridge & Iron Works

Tanks—Field Storage—
American Car & Foundry Co.
American Tank Co.
Donovan Boiler Works.
Graver Corp.
Kaw Boiler Works.
Kewanee Boiler Co.
Maloney Tank Mfg. Co.
Petroleum Iron Works Co.
Pittsburgh-Des Moines Steel Co.
Riter-Conley Co.
Tulsa Boiler & Machinery Co.
United Iron Works, Inc.

Tanks—Horizontal Storage—
Columbian Steel Tank Co.
Graver Corp.
Kaw Boiler Works Co.
Maloney Tank Mfg. Co.

Tanks—Run Down—
Donovan Boiler Works.
Graver Corp.
Kaw Boiler Works Co.
Newton Process Mfg. Co.
Pioneer Tank & Boiler Co.

Tanks—Truck—
American Tank Co.
Butler Mfg. Co.
Columbian Steel Tank Co.
White Co.

Tanks—Underground—
Butler Mfg. Co.
Columbian Steel Tank Co.
Graver Corp.
Kewanee Boiler Co.
Pittsburgh-Des Moines Steel Co.
Tulsa Boiler & Machinery Co.

Tanks—Welded—
American Tank Co.
Chicago Bridge & Iron Works.
Gantz Tank Co.

Taper Tanks—
Hughes Tool Co.

Tapes—Measuring for Oil Gauging—
Lufkin Rule Co.

Tee Casing Heads (See Casing Heads)—

Temperature Controllers (See Controllers—Temperature)—

Temper Screws (See Screws)—

Thermometers—Indicating and Recording—
American Schaeffer & Budenberg Corp.
Bristol Co.
Foxboro Co., Inc.
Tagliabue, C. J., Mfg. Co.
Taylor Instrument Co.

Threading Machines—
Bignall & Keeler Machine Wks.
Landis Machine Co.

Thread Protectors—
Spang & Co.

Tin Plates—Bright—
American Sheet & Tin Plate Co.

Tin Plates—Roofing—
American Sheet & Tin Plate Co

Tires—Automobile—
Continental Supply Co.

Tongs—
Bridgeport Machine Co.
Dunn Mfg. Co.
Wilson Oil Tools Corp.

Tongs—Back Up—
Williams, J. H., & Co.

Tongs—Break Out—
Reed Roller Bit Co.
Williams, J. H., & Co.

Tongs—Casing—
Guiberson Corp.

Tongs—Chain Pipe—
Williams, J. H., & Co.

Tongs—Pipe—
National Transit Pump & Machine Co.

Tongs—Tool Joint—
Guiberson Corp.
Hughes Tool Co.
Reed Roller Bit Co.

Tool Joints—
Bridgeport Machine Co.
Hughes Tool Co.
Lucey Mfg. Corp.
Oil Well Supply Co.
Regan Forge & Engineering Co.

Tool Joint Tongs (See Tongs)—

Tools—Fishing and Drilling (See Drilling and Fishing Tools)—

Tools — Oil Well Drilling (See Drilling and Fishing Tools)—

Torches—
Oxweld Acetylene Co.

Tractor Oil (See Oil—Tractor)—

Tractors—
International Harvester Co. of America.
Rock Island Plow Co.

Transmission Belt—Rubber—
Goodrich, B. F. Rubber Co.

Transmission Lining—
Stanley Belting Corp.

Traveling Block—
Lucey Mfg. Corp.
Regan Forge & Engineering Co.
Wright Mfg. Co.

Trenchers—Vertical Boom—
Barber-Greene Co.

Tracks—Motor—
General Motors Truck Co.
International Harvester Co. of America.
White Co.

Truck Tanks (See Tanks)—

Truck Tires (See Tires—Truck)—

Tubes—Boiler, Charcoal Iron—
Reading Iron Co.

Tubes—Boiler Steel—
National Tube Co.
Ryerson, Jos. T. & Son, Inc.

Tubing—
National Tube Co.
Reading Iron Co.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Superior Tube Co.

Tubing Catchers—
Dunn Mfg. Co.
Guiberson Corp.

Tubing Elevators (See Elevators, Casing and Tubing)—

Tubing Rings—
Oil Well Improvements Co.

Tubular Goods—
Oil Well Supply Co.
Republic Iron & Steel Co.
Spang, Chalfant & Co., Inc.

Tubular Goods—Wrought Iron—
Reading Iron Co.

Turbines for Lighting Equipment
Lucey Mfg. Corp.
Pyle-National Co.
Westinghouse Electric & Mfg. Co.

Turbine Generators (See Generators—Turbine)—

Turnbuckle Derricks (See Derricks)—

U

Underground Tanks—(See Tanks)

Undercreamer Bit Steel—
Heppenstall Forge & Knife Co.

Undercreamer Cutter Steel—
Heppenstall Forge & Knife Co.

Underreamers—
Bridgeport Machine Co.
Guiberson Corp.
Wilson Oil Tools Corp.

Unions—
Continental Supply Co.
Kelly & Jones Co.

V

Vacuum Pumps (See Pumps)—

Valuations—
American Appraisal Co.

Valves—Blow-off—
Homestead Valve Mfg. Co.

Valves—Brass and Bronze—
Chapman Valve Mfg. Co.
Homestead Valve Mfg. Co.
Kelly & Jones Co.
Lunkenheimer Co.
Reading Steel Casting Co.
Walworth Mfg. Co.

Valves—Cast Steel—
Homestead Valve Mfg. Co.

Valves—Check—
Gaso Pump & Burner Mfg. Co.
Lunkenheimer Co.

Valves—Drop Forged Steel—
Edward Valve & Mfg. Co.
Vogt, Henry, Machine Co.

Valves — Gate — High and Low Pressure—
Chapman Valve & Mfg. Co.
Continental Supply Co.
Crane Co.
Darling Valve & Mfg. Co.
Kelly & Jones Co.
Kennedy Valve Mfg. Co.
Ludlow Valve Mfg. Co.
Lunkenheimer Co.
Pittsburgh Reinforced Brazing & Machine Co.
Powell, Wm., Co.

Valves—Iron—
Lunkenheimer Co.
Reading Steel Casting Co.

Valves—Metal Pump—
Durabla Mfg. Co.

Valves—Relief—Supersensitive—
Davis Regulator Co.

Valves—Steel—
Edward Valve & Mfg. Co.
Kelly & Jones Co.
Lunkenheimer Co.
Metric Metal Works.
Pittsburgh Reinforced Brazing & Machine Co.
Powell, Wm., Co.
Reading Steel Casting Co.

Valves—Tank Vent—
Oil Conservation Engineering Co.

Valves—Working Barrel—
Atlas Bail Co.
Axelson Machine Co.
Hough, Charles N. Mfg. Co.
Northrup Equipment Co.
Oil Well Supply Co.

Varnishes—
Sherwin-Williams Co.

Ventilators—Rotary—
Swartwout Co.

W

Wagons—Truss Wheel—
Athey Truss Wheel Co.

Walking Beams—Steel—
Moore, Lee C., & Co., Inc.

Water Gauge Cocks (See Cocks)—

Water Pumps (See Pumps)—

Water Softeners and Filters—
Graver Corp.

Water Well Screens (See Screens)

Wax—
Barnsdall Refining Co.
Gulf Refining Co.
Pure Oil Co.

Weight Indicators—
Hughes Tool Co.

Welded Tanks—(See Tanks)—

Welding Accessories—Electric—
Wilson Welder & Metals Co.

Welding and Cutting Apparatus—
Oxweld Acetylene Co.

Welding Machines—Electric—
Wilson Welder & Metals Co.

Welding Supplies
Oxweld Acetylene Co.

Welding Wire—
Frick-Reid Supply Co.
Oxweld Acetylene Co.
Page Fence & Wire Products Association.
Wilson Welder & Metals Co.

Well Drilling and Fishing Tools—(See Drilling and Fishing Tools)—

Well Drilling Equipment (See Drilling Equipment)—

Well Shooting—
Eastern Torpedo Co.
Zero Hour Torpedo Co.

Wheels—Steel Automotive—
Budd Wheel Co.

Winches—
Braden Co.
Oil Conservation Engineering Co.

Wire Lines (See Cables—Steel)—

Wire Ropes (See Rope—Wire)—

Wood Patterns and Models—
Gaso Pump & Burner Mfg. Co.

Working Barrels—
Axelson Machine Co.
Bradford Motor Works.
D & B Pump & Supply Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hough, Charles N., Mfg. Co.
McGregor Working Barrel Co.
Northrup Equipment Co.
Oil Well Supply Co.

Working Barrel Valves (See Valves—Working Barrel)—

Wrenches—Drop Forged—
Williams, J. H., Co.

Wrenches—Pipe—
Trimont Mfg. Co.
Walworth Mfg. Co.

Wrenches—Ratchet—
Dresser, S. R., Mfg. Co.

Z

Zinc Oxide—
Eagle-Picher Lead Co.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Statement for September Runs

	Month	Daily Av.
*Prairie P. L. Co.	4,320,000	144.000
Gulf P. L. Co.	737,494	24,583
Texas P. L. Co.	515,214	17,174
Magnolia Pet. Co.	1,063,603	35,453
Empire P. L. Co.	852,134	28,404
Cosden P. L. Co.	678,783	22,626
*Sinclair P. L. Co.	1,383,000	46,100
*Other lines	8,670,000	289,000
Total September	18,220,224	607,340
Total August	18,295,966	590,192
Difference	65,738	22,148

Shipments

†Prairie P. L. Co.	3,688,350	122,945
Gulf P. L. Co.	1,049,979	34,999
Texas P. L. Co.	608,988	20,299
Magnolia Pet. Co.	1,286,976	42,899
Empire P. L. Co.	852,953	28,432
Cosden P. L. Co.	797,985	26,599
†Sinclair P. L. Co.	2,525,577	84,186
*Other lines	8,040,000	268,000
Total September	18,850,808	628,359
Total August	19,292,278	622,363
Difference	442,470	5,996

Stocks

*Prairie Oil & Gas Co.	25,922,000
*Prairie Pipe Line Co.	3,000,000
Gulf Pipe Line Co. and Gypsy Oil Co.	7,498,943
The Texas Co.	4,687,049
Magnolia Petroleum Co.	6,981,203
Empire Pipe Line Co.	3,331,586
Cosden Pipe Line Co.	2,130,753
*Sinclair Crude Oil Purchasing Co.	24,000,000
Carter Oil Co.	17,102,163
*Other lines	10,225,000
Total September	103,897,697
Total August	103,980,502
Difference	102,005

*Estimated. †Prairie shipments include Texas crude oil. Sinclair shipments include Texas and Wyoming crude oil.

Note: Stocks do not include 6,000,000 bbls. of crude oil held in storage on private tank farms and leases.

EASTERN PIPE LINES
Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for September and October:

	Sept. '25	Oct. '25
Nat. Transit	158,910.27	160,485.98
S. W. Pa. Pipe	91,875.31	88,614.81
Eureka P. L.	357,506.00	369,811.62
Buckeye P. L. (Macksb'g)	296,333.41	303,780.86
Buckeye P. L. (Cleveland)	13,396.16	13,981.45
Buckeye P. L. (Lima, etc.)	130,649.37	127,521.41
Indiana P. L.	11,048.88	9,506.89
Cum'land P. L.	293,295.97	292,906.37
N. Y. Transit	18,511.37	20,573.89
Tidewater P. L.	149,530.51	150,134.69
Pure Oil	175,849.14	182,452.25
Emery P. L.	49,086.26	48,956.62
Indian Ref.	93,929.45	86,547.46
Paragon Dev.	28,258.77	28,235.35
Pittsburgh P. L.	7,110.21	7,323.62
Total	1,875,291.08	1,890,833.27
Daily average	62,509.70	60,994.62

Note—Indian Refining Co. also reported other receipts of 434,724.08 bbls. Paragon Refining Co. had other receipts of 128,-901.10 bbls. Paragon Development had other receipts of 2,562.46 bbls. Pure Oil had other receipts of 64,163.76 bbls. Pittsburgh P. L. had other receipts of 505.13 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for September and October:

	Sept. '25	Oct. '25
Nat. Transit	382,049.14	397,576.55
S. W. Pa. Pipe	341,809.20	364,951.95
Eureka P. L.	170,953.05	135,027.77
Buckeye P. L. (Macksb'g)	98,553.82	133,831.42
Buckeye P. L. (Cleveland)	1,400.95	969.15
Buckeye P. L. (Lima, etc.)	793,826.27	795,060.85
Indiana P. L.	963,603.95	995,708.07
Cum'land P. L.	128,622.92	157,874.91
Southern P. L.	22,373.27	651.00
Crescent P. L.	10,701.14	
N. Y. Transit	550,263.83	466,894.84
Northern P. L.	129,295.59	73,874.32
Tidewater P. L.	144,975.14	175,398.69
Pure Oil	260,864.22	244,601.70
Emery P. L.	48,658.90	48,308.05
Paragon Ref.	39,045.65	98,916.25
Indian Ref.	476,931.09	378,805.98
Paragon Dev.	30,183.33	32,046.70
Pittsburgh P. L.	7,461.20	7,077.88
Total	4,701,572.76	4,507,036.03
Daily average	156,719.09	145,388.26

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of September and October were as follows:

	Sept. '25	Oct. '25
Nat. Transit	903,098.26	964,802.37
S. W. Pa. Pipe	791,307.53	721,496.86
Eureka P. L.	1,372,542.87	1,492,661.69
Buckeye P. L. (Macksb'g)	266,078.56	244,229.22
Buckeye P. L. (Cleveland)	63,568.69	57,105.89
Buckeye P. L. (Lima, etc.)	3,568,404.38	3,509,002.32
Indiana P. L.	556,281.70	595,464.31
Cum'land P. L.	587,800.60	571,941.31
Southern P. L.	510,359.39	528,343.58
Crescent P. L.	10,066.11	
N. Y. Transit	681,344.81	812,360.18
Northern P. L.	782,710.21	735,413.58
Pure Oil	360,508.97	355,376.69
Emery P. L.	26,778.95	26,957.36
Paragon Ref.	171,653.02	200,996.85
Indian Ref.	119,181.06	260,559.26
Paragon Dev.	6,319.53	5,428.40
Pittsburgh P. L.	3,748.32	4,720.44
Total	10,781,753.06	11,086,850.31
Increase	192,728.26	305,097.25

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of September and October showing the gross stocks of the above fields:

	Sept. '25	Oct. '25
Penna	2,740,211.77	2,842,909.85
Lima	1,244,314.67	1,135,862.12
Kentucky	1,243,334.36	1,143,060.42
Mid-Cont.	4,514,989.02	4,850,093.71
Illinois	38,903.24	114,924.20
Total	10,781,753.06	11,086,850.31

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1922	1923	1924	1925
Jan.	67,702	75,790	62,638	56,831
Feb.	75,096	71,092	68,023	60,606
Mar.	78,531	76,592	68,721	60,575
April	75,462	75,614	71,058	63,062
May	77,692	77,365	63,942	59,217
June	76,193	77,593	63,230	61,270
July	76,435	71,879	64,208	62,639
Aug.	79,387	76,910	59,942	59,686
Sept.	78,512	72,358	62,930	62,510
Oct.	77,209	76,256	64,976	60,995
Nov.	75,313	70,762	56,282	
Dec.	73,351	69,271	55,814	

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1922	1923	1924	1925
Jan.	119,792	171,067	145,518	157,889
Feb.	111,362	164,219	148,732	160,868
Mar.	127,753	185,487	147,098	154,591
April	127,066	170,751	147,611	151,429
May	127,846	177,102	134,997	146,995
June	137,638	173,598	143,010	149,487
July	137,872	168,330	124,187	161,338
Aug.	153,275	142,766	123,120	161,730
Sept.	158,761	137,266	127,325	156,719
Oct.	165,345	134,597	123,170	145,388
Nov.	165,677	131,426	124,400	
Dec.	172,861	139,909	151,892	

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines, at the close of each month for the past three years:

	1923	1924	1925
Jan.	14,040,567	12,907,202	11,258,276
Feb.	14,028,487	11,844,068	11,192,924
Mar.	13,873,146	10,906,752	11,158,297
April	13,737,575	10,922,742	11,062,032
May	13,815,622	11,325,309	11,207,562
June	14,641,253	11,544,204	11,093,764
July	14,645,584	12,062,361	11,067,453
Aug.	14,770,539	12,221,676	10,974,481
Sept.	14,803,444	12,206,836	10,731,753
Oct.	14,504,111	12,664,061	11,086,850
Nov.	14,157,726	12,268,530	
Dec.	13,444,361	11,583,680	

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1924—	Receipts	Shipments	Stocks
Oct.	3,342.40	1,880.50	14,590.82
Nov.	2,700.13	482.89	12,427.56
Dec.	3,120.34	2,659.13	12,888.77
1925—			
Jan.	1,730.86	1,881.15	12,938.68
Feb.	2,702.05	4,564.70	11,075.83
Mar.	3,177.21	2,354.30	11,893.74
April	3,040.41	1,780.11	13,159.04
May	2,314.99	5,719.90	10,954.13
June	3,052.75	1,291.93	12,035.05
July	2,839.34	3,174.16	11,550.39
Aug.	2,216.97	1,577.99	13,189.27
Sept.	2,929.99	5,352.05	10,767.21
Oct.	2,869.75	1,499.34	12,137.62

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Nov. 1	1,999,337.34
Runs from wells	677,366.72
Other receipts	528,592.26
Regular deliveries	548,167.67
Other deliveries	671,360.40

The amount of Illinois oil run by the Tidewater Pipe Co. in October was 29,165.28 bbls. and deliveries were 85,514.65 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1924—	Runs	Deliveries
October	741,767.42	543,863.77
November	650,147.63	521,459.21
December	640,919.23	595,943.28
1925—		
January	695,513.43	572,304.77
February	636,635.20	514,661.52
March	754,335.63	611,348.49
April	622,865.14	637,242.85
May	692,671.94	568,573.62
June	700,090.46	589,535.24
July	724,481.26	564,713.19
August	673,652.38	650,643.97
September	706,434.87	510,697.61
October	706,532.00	633,682.32

The Tidewater Pipe Co., Ltd., also delivered in October 290,167.58 bbls. of Oklahoma oil. The total deliveries of all grades by the Tidewater were 551,080.92.

AVERAGE WEEKLY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Average bbls. per week—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
June	69,669	17,731	136,021	117,600	44,569	376,600	.....	70,228	.....	2,569	72,807	449,407
July	36,127	79,891	265,321	98,042	89,873	569,254	.....	29,515	.....	.....	29,515	608,769
August	26,515	68,432	223,097	85,000	92,806	444,850	.....	35,903	.....	4,067	39,970	484,820
September	17,269	35,931	212,100	86,569	89,600	441,469	.....	36,569	.....	.....	36,569	478,338

AVERAGE WEEKLY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per week—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
June	157,962	84,700	497,000	101,738	238,938	1,080,338	225,638	196,938	63,000	24,023	509,599	1,589,947
July	93,709	55,546	304,612	123,515	156,485	733,866	173,873	238,455	35,679	53,291	501,298	1,235,164
August	70,455	62,097	326,515	107,933	176,224	742,224	147,224	228,291	18,515	29,353	423,383	1,165,613
September	70,700	41,531	289,321	61,600	194,531	657,693	115,500	168,469	37,800	14,700	336,469	994,162

GROSS PRODUCTION IN THE UNITED STATES FOR 12 MONTHS

1924—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountain	Eastern Fields	Total
October:	Month	18,636,559	16,189,898	10,942,005	2,765,455	3,983,636	1,774,707	3,058,288	3,396,000	60,808,588
	Daily average	603,115	522,255	353,000	89,305	128,506	57,249	98,654	109,516	1,961,567
November:	Month	17,767,024	15,955,620	10,731,264	2,597,460	3,461,050	1,965,921	2,788,110	2,941,000	58,207,459
	Daily average	592,234	531,854	357,709	86,582	115,035	65,531	92,937	98,033	1,940,248
December:	Month	18,795,126	16,031,185	11,264,915	2,537,443	3,380,511	1,870,876	2,902,888	3,000,850	59,183,794
	Daily average	606,294	517,135	363,384	81,853	109,049	60,351	74,287	96,462	1,909,155
1925—										
January:	Month	18,743,288	15,462,800	13,790,195	2,520,858	3,278,484	1,774,072	3,027,676	3,065,992	61,363,366
	Daily average	604,622	498,800	444,845	81,318	105,758	57,228	84,760	98,903	1,976,238
February:	Month	16,869,832	13,905,780	11,361,896	2,466,660	2,886,296	1,547,461	2,666,335	2,905,000	54,609,261
	Daily average	602,494	496,635	406,782	88,095	103,082	55,266	95,226	103,750	1,950,333
March:	Month	18,636,009	14,402,716	13,047,068	2,834,524	3,564,473	1,807,517	2,734,235	3,282,000	60,289,552
	Daily average	600,839	464,636	420,886	91,114	114,983	58,307	88,201	105,871	1,944,502
April:	Month	17,959,653	14,055,450	12,683,520	2,971,110	7,560,240	1,695,780	2,744,691	3,157,000	62,927,444
	Daily average	598,655	468,515	422,784	99,037	252,008	56,526	91,490	107,150	2,036,692
May:	Month	18,820,328	14,486,579	13,165,005	3,493,266	11,813,996	1,887,729	2,799,542	3,167,300	69,633,745
	Daily average	607,107	467,309	424,678	112,686	381,097	60,572	90,308	102,171	2,246,250
June:	Month	19,258,135	13,832,970	12,583,740	3,175,440	9,200,372	1,900,506	2,754,492	3,289,000	66,134,661
	Daily average	642,938	461,099	419,458	105,848	306,679	63,350	91,816	109,000	2,133,053
July:	Month	20,411,049	14,263,595	13,390,917	3,686,675	7,835,819	1,898,178	3,123,199	3,348,000	66,963,402
	Daily average	658,021	460,115	396,804	118,925	252,768	61,231	100,942	108,000	2,160,110
August:	Month	21,005,580	14,441,040	11,919,066	3,558,087	7,450,571	1,843,043	3,168,014	3,177,004	66,562,405
	Daily average	677,599	465,840	384,486	114,777	240,341	59,453	102,194	102,484	2,147,158
September:	Month	20,062,763	14,825,040	11,224,830	3,393,270	6,457,950	1,782,870	3,133,200	3,120,000	64,005,923
	Daily average	668,759	494,168	374,161	113,109	215,265	59,429	104,458	104,000	2,133,531
	Total 12 months	227,045,357	177,853,643	145,104,421	35,993,258	70,873,458	21,748,660	33,911,756	38,048,147	750,478,700
	Daily average	622,338	487,270	397,546	98,612	194,174	59,585	92,911	104,241	2,056,106

The ADVERTISERS' INDEX

A

Acme Fishing Tool Co. 89
Acme Petroleum Co. .....
Ajax Iron Works .....
Ajax Rope Co. .....
Aldrich Pump Co. 140
Alexander, Clive M. 142
Aluminum Co. of America .....
Amdyco Corporation .....
American Appraisal Co. 123
American Cable Co. .....
American Car & Foundry Co. .....
American Cast Iron Pipe Co. .....
American Radiator Co. .....
American Schaeffer & Budenburg Corp. 76
American Sheet & Tin Plate Co. 114
American Tank Co. 87
American Telephone & Telegraph Co.
American Well Works .....
Anderson & Anderson 156
Anderson, Carl B. 143
Andrews Steel Co. 91
Armstrong Bros. Tool Co. 140
Arnold, J. F., & Co. .....
Askania Works 96
Athey Truss Wheel Co. .....
Atlas Ball Co. .....
Auer, C. A. .....
Austin Co. .....
Axelson Machine Co. 97

B

Baash-Ross Tool Co. 112
Baker Casing Shoe Co. .....
Baker Motors, Inc. .....
Barber-Greene Co. 67
Barnickel, Wm. S., & Co. 137
Barnsdall Refining Co. 16
Bartlesville Supply Co. 99
Berry's, James B. Sons Co. .....
Bessemer Gas Engine Co. 71
Bignall & Keeler Machine Works .....
Blackmer Rotary Pump Co. 156
Black Steel & Wire Co. 69
Blaw-Knox Co. .....
Borden Co. .....
Botfield Refractories Co. .....
Bovaird & Seyfang Mfg. Co. 95
Bovaird Supply Co., The .....
Braden Co. .....
Bradford Motor Works .....
Bradford Rig & Reel Co. .....
Braun, C. F., & Co. 11
Bridgeport Machine Co. ..... Back Cover
Bristol Co. 110
Broderick & Bascom Rope Co. .....
Brokaw, Dixon, Garner & McKee 156
Brown Instrument Co. .....
Brown & Thomsen 143
Bruce-MacBeth Engine Co. .....
Buckeye Traction Ditcher Co. .....
Buda Co. .....
Budd Wheel Co. .....
Buffalo Gasolene Motor Co. 6
Burns Tool Co. .....
Burt Manufacturing Co. 120
Busch-Sulzer Bros. Diesel Engine Co.
Butler Manufacturing Co. 72

C

Cable, Jo. H. 156
Capital Abstract & Realty Co. 141
Carbondale Machine Co. .....
Carnegie Steel Co. 140
Caudill, Samuel J. 143
Celite Products Co. .....
Central Steel Co. .....
Chain Belt Co. 45
Champion Machine & Forging Co. .....
Chaplin-Fulton Manufacturing Co. 120
Chapman Valve Manufacturing Co. .....
Chestnut & Smith Corp. 12
Chicago Bridge & Iron Works .....
Chicago Pneumatic Tool Co. 85
Chicago Steel Foundry Co. .....
Clapp, Frederick G. 143
Clark Bros. Co. .....
Clark, Robert W. 156
Classified Wants 118-119
Climax Engineering Co. 117
Coatesville Boiler Works .....
Columbian Rope Co. .....
Columbian Steel Tank Co. .....
Columbus Forge & Iron Co. .....
Columbus Sucker Rod Co. .....
Continental Motors Corp. .....
Continental Supply Co. 21
Cook Paint & Varnish Co. .....
Cooper, C. & G., Co. 49
Cox & Sons Co., The 140
Crane Co. 24
Crown Central Petroleum Corp. .....
Cunningham Co. .....

D

D. & B. Pump & Supply Co. .....
Darling Valve & Manufacturing Co. 10
Dart, E. M., Manufacturing Co. .....
Davis, G. M., Regulator Co. 95
Dawson Towel Supply Co. 141
Day, Roland B. 143
Dayton Pipe Coupling Co. .....
Dean Bros. Co. 156
Dean Hill Pump Co. 156
Dearborn Chemical Co. 103
De La Vergne Machine Co. .....
Delta Electric Co. 102
Detroit Graphite Co. .....
Diamond Drill Carbon Co. 155
Diamond Drilling & Exploration Co. 143
Diamond Power Specialty Corp. .....
Dickey-Ashby-Fountain Co. 141
Dixon, Joseph, Crucible Co. 141
Dodge Manufacturing Co. .....
Donovan Boiler Works, Inc. .....
Dresser, S. R., Manufacturing Co. 35
Dunn Manufacturing Co. 8
Durabla Mfg. Co. 105

E

Eagle Picher Lead Co. 3
Eastern Torpedo Co. 155
Edward Valve & Manufacturing Co.
Empire Refineries, Inc. .....
Emsco Steel Products Co. .....
Equitable Meter Co. .....

F

Fairbanks-Morse & Co. .....
Federal Supply Co. .....
Fenwick-Reddaway Mfg. Co. .....
Fisher Governor Co. 143
Fleming, Martin, Undertaking Co. 141
Flexible Steel Lacing Co. 110
Foamite-Childs Corp. .....
Foggan, George N. .....
Fohs, F. Julius 142
Foos Gas Engine Co. .....
Fort Worth Laboratories 143
Foster & Reiter 142
Foxboro Co., Inc., The .....
Franklin Valveless Engine Co. .....
Freeborn, F. W., Engineering Co. 141
Frick-Reid Supply Co. 51
Full Crawler Co. .....

G

Gantz Tank Co. .....
Gardner Governor Co. 107
Garlock Packing Co. .....
Garrett, M. M. 156
Gaso Pump & Burner Manufacturing Co. ..... Inside Back Cover
General American Tank Car Corp. 139
General Motors Truck Co. .....
Gomory, W. L. 156
Goodrich, B. F. Rubber Co. .....
Goodyear Tire & Rubber Co. .....
Gott, H. P., Manufacturing Co. 155
Goulds Manufacturing Co. .....
Graver Corp. 73
Greene, Frank C. 142
Greenspon's, Joseph, Sons Iron & Steel Co. .....
Griscom-Russell Co. 99
Guiberson Corp. 55
Gulf Refining Co. .....
Gurley, W. & L. E. .....

H

Halliburton, Erle P. 104
Harrisburg Pipe & Pipe Bending Co. 13
Havana Manufacturing Co. .....
Hazard Manufacturing Co. .....
Henry, George W. 141
Heppenstall Forge & Knife Co. .....
Herald Brothers 156
Hercules Motors Corp. .....
Heydrick Mapping Co. 141
Hills-McCanna Co. .....
Hinderliter Tool Co. .....
Hoffman Manufacturing Co. .....
Homestead Valve Manufacturing Co.
Hood, H. H. 156
Hope Engineering & Supply Co. 78
Hopkins, Edwin B. 142
Hough, Charles N., Mfg. Co. 98
Houston Pump & Supply Co.
Hughes Tool Co. 65-128
Hunt, Robert W., Co. 156
Huntley & Huntley 143

I

Illinois Glass Co. .....
Imperial Belting Co. 100
Imperial Royalties Co. .....
Ingersoll-Rand Co. .....
International Derrick & Equipment Co. ..... Inside Front Cover
International Harvester Company of America 15
International Supply Co. .....
Iron King Manufacturing Co. 90

J

Jarecki Manufacturing Co. .....
Johns-Manville, Inc. .....
Jones, S. M., Co. 141

K

Kansas City Hay Press Co. 141
Kaw Boiler Works Co. .....
Kellogg, M. W., Co. 139
Kelly & Jones Co. 143
Kennedy Valve Manufacturing Co. 91
Kerr, John B. 143
Kewanee Boiler Co. .....
Kinney Manufacturing Co. .....
Kirk & Hoover 143

L

Lafe Speer Abstract Co. 141
Landis Machine Co. .....
Larkin & Co. 82
Layne & Bowler Co. .....
Leidecker Tool Co. 57
Linde Air Products Co. 1
Link-Belt Co. .....
Longhart Supply Co.
Longyear, E. J., Co. 142-144
Lucey Manufacturing Corp. 17
Ludlow Valve Manufacturing Co. .....
Lufkin Foundry & Machine Co. .....
Lufkin Rule Co. .....
Lunkenheimer Co. .....

M

Magnolia Petroleum Co. .....
Maloney Tank Mfg. Co. 115
Manzel Brothers Co. .....
Marietta Manufacturing Co.
Marion Machine Foundry & Supply Co. 52-53
Marsh Gauge Pole Co. 142
Matson, George C. 156
Matteson, W. G. 142
Messimer, H. H. 143
Metric Metal Works .....
Midwest Piping & Supply Co. .....
Miller Improved Gas Engine Co. .....
Miller, Max B., & Co., Inc. .....
Milwaukee Forge & Machine Co. 142
Mineral Exploration Co. .....
Mine Safety Appliance Co. .....
Monarch Cement Co. .....
Moon Manufacturing Co. .....
Moore, Lee C., & Co., Inc. 59
Mosler Metal Products Corp. .....
Munn & Co. 141
Murray Rubber Co. 83
Myers, F. E., & Bro. Co. 143

Mc

McCord Radiator & Mfg. Co. 103
McGregor Working Barrel Co. .....
McIntosh & Seymour Corp. .....
McNutt, V. H. 142

N

National Carbon Co., Inc. 1
National Lead Co. .....
National Petroleum Engineering Corp. 141
National Petroleum Marketers' Association .....
National Supply Co. 37
National Transit Pump & Machine Co. 94
National Tube Co. .....
National Turnbuckle Derrick Co. .....
Newton Process Co. 33
Norris Brothers, Inc. 102
North American Car Co. .....
Northern Fire Apparatus Co. .....
Northern Oil Information Bureau 141
Northrup Equipment Co. 116
Novo Engine Co. .....
Nugent Steel Castings Co. 143
Nuttall, R. D., & Co. .....
Nye Tool & Machine Works 100

O

O'Brien Steel Construction Co. 144
Ohio Steel Foundry Co. .....
Oil Conservation Engineering Co. 4
Oil Country Specialties Mfg. Co. .....
Oil Insurance Association .....
Oil Well Improvements Co. .....
Oil Well Supply Co. 80-81
Okmulgee Boiler & Welding Works .....
Oster Manufacturing Co. .....
Oxweld Acetylene Co. 1

P

Page Fence & Wire Products Association .....
Parkersburg Machine Co. .....
Parkersburg Rig & Reel Co. .....
Patrick, R. S. 108
Pattin Brothers Co. .....
Pennzoil Co., The .....
Petroleum Iron Works .....
Pforzheimer, Carl H., & Co. .....
Pickering Governor Co. .....
Pittsburgh-Des Moines Steel Co. 84
Pittsburgh Meter Co. 98
Pittsburgh Reinforced Brazing Machine Co. 61
Powell, William Co. .....
Power Manufacturing Co. .....
Power Piping Co. 155
Power Specialty Co. 79

P

Prescott Co., The .....
Prest-O-Lite Co., The 1
Progressive Brass Mfg. Co. .....
Pure Oil Co. 20
Pyle-National Co. .....

R

Ratigan, J. P., Co. .....
Reading Iron Co. 19
Reading Steel Castings Co., Inc. .....
Reed Roller Bit Co. 40
Regan Forge & Engineering Co. .....
Reid, Joseph, Gas Engine Co. 103
Republic Iron & Steel Co. 86
Republic Supply Co. .....
Rich, John L. 143
Ring, DeWitt T. 156
Riter-Conley Co. 143
Rock Island Plow Co. .....
Roots, P. H. & F. M., Co. 22
Ross-Meehan Foundries .....
Ryerson, Joseph T., & Son 142

S

Safety Pulling Machine Co. .....
Saunders Bros. 101
Sharples Specialty Co. 2
Sheffield Steel Corp. .....
Sherwin-Williams Co. .....
Shippers' Car Line, Inc. 112
Sinclair Refining Co. 133
Sivyer Steel Casting Co. 5
Skelly Oil Co. .....
Slater Bros. Turnbuckle Derrick Co. .....
Smith, Gene R. 142
Smith Separator Co. .....
South Chester Tube Co. 77
Southern Cornice Works .....
Southwestern Engineering Co., Inc. 113
Spang & Co. 93
Spang, Chalfant & Co. 18
Spellman, John M. 141
Spence Machine Co. 142
Spengler Core Drilling Co. 111
Stalder, Walter 142
Standard Engineering Co. .....
Stanley Belting Corp. 106
Star Drilling Machine Co. .....
Stearns-Roger Mfg. Co. .....
Strom Steel Ball Co. 108
Sullivan Diamond Core Drills 140
Sullivan Machinery Co. .....
Superior Tube Co. 75
Swartwout Co., The .....

T

Taglianue, C. J., Mfg. Co. .....
Taylor Instrument Co. .....
Templeton, Kenley & Co., Ltd. .....
Texas Co., The 92
Thompson, V. A. 142
Titusville Forge Co. .....
Titusville Iron Works .....
Toledo Pipe Threading Machine Co. 106
Trimont Manufacturing Co. .....
Trumble Gas Trap Co. .....
Truscon Steel Co. .....
Tulsa Boiler & Machinery Co. .....
Tulsa Ice Co. 141

U

Union Machine Co. .....
United Iron Works, Inc. 96
United States Cast Iron & Pipe Foundry Co. .....
United States Rubber Co. 62-63
Universal Oil Products Co. 43
U. S. Tool Co. 7

V

Vogt Brothers Manufacturing Co. 156
Vogt, Henry, Machine Co. .....

W

Wall Rope Works, Inc. 88
Walsh & Weidner Boiler Co. .....
Walworth Manufacturing Co. .....
Washburne, C. W. 142
Waukesha Motor Co. 47
Westcott & Greis .....
Western Machinery Co. .....
Westinghouse Electric & Manufacing Co. 23
White Co. .....
Wickwire Spencer Steel Co. .....
Wico Electric Co. .....
Williams, J. H., & Co. 109
Wilson Oil Tools Corp. ..... Front Cover
Wilson Welder & Metals Co. .....
Wood & Wood 143
Worthington Pump & Machinery Corp. 9
Wright Manufacturing Co. 120
Wright, Harry F. 156

Y

Yale & Towne Manufacturing Co. .....

Z

Zero Hour Torpedo Co. 74

WHAT AND WHERE TO BUY—PAGES 157-158-159